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## Original Articles

### Truths and Fallacies About Appendicitis[1]


BY JOHN B. DEAVER, M.D.

Professor of Surgery in the University of Pennsylvania, Philadelphia, Pa.


Since the day when Reginald Heber Fitz revealed the true cause of disease in the right iliac fossa the interest aroused in appendicitis has continued almost unabated throughout the four decades that have passed since that time. A great deal of the attention bestowed upon the disorder was the result of persistent propaganda maintained by those who were from the first convinced of the correctness of Fitz's theory and the rationale of the treatment advocated by him. It was not easy to impress the truth upon the prejudiced professional mind and to eradicate the fallacies, many of them still prevalent, concerning this insidious and protean disease. To its protean character no doubt much of the difficulty of effectual propaganda and many of the fallacies concerning the disease were due. There is probably no other disorder an analysis of whose symptoms would cover so many of the body systems as appear in an analysis of appendicitis, both in its acute and chronic form. The tendency of acute appendicitis to mimic nearly every other acute abdominal condition provides unlooked-for pitfalls in diagnosis. Not only that, but even when diagnosed its course is insidious and treacherous, full of snares and dangers which only experience and prompt, energetic, rational treatment can avoid. Probably the most striking illustration of this point is the fact that very often a case of acute appendicitis, which to all appearances is subsiding, is actually lying low for a final flare-up armed with the deadly weapon of gangrene or perforation. No doubt every one has on many occasions successfully carried a patient through one or more attacks of acute appendicitis. But it has been done at a great risk—how great the risk, only the surgeon who sees the disease in its actual course can tell; and how many deaths from acute appendicitis are attributed to surgery instead of to procrastination, only the surgeon, and the procrastinator, can tell. Each, however, keeps his counsel in the matter.

Therefore I have always said be wary of the dangers of perforation and gangrene in a case of acute appendicitis. It is fallacious to suppose that incipient or actual perforation always manifests itself by violent onset of symptoms or by aggravation of existing symptoms. Almost daily the surgeon sees the error of this reasoning, but nevertheless he continues to have cases brought to him which at operation demonstrate either perforation, gangrene, or pus, and the attending physician, who has accompanied the case to the operating table, expresses satisfaction, I had almost said joy, at the revelation!

I have on so many occasions preached against that other fallacious procedure of

[1]Read before the Northern Medical Association of Philadelphia, November 12, 1920.

purging the acute abdomen that I scarcely have the courage to do more than mention it, especially as I believe the custom is on the wane. Nevertheless about one-fourth of the cases of acute appendicitis admitted to the Lankenau Hospital are associated with either abscess, perforation, or gangrene, or all of these complications; about 90 per cent of these give a history of purgation.

The use of local applications, either hot or cold, is also fallacious. The expression "freezing out the appendix" is frequently heard, and needless to say is not only nonsensical but absolutely absurd. An ice-bag may do good from the psychological standpoint, if we are to believe the patient's statement; and if no harm results from its application we must be satisfied at that, but we must not delude ourselves that it has had any actual local effect. The great drawback to the use of the ice-bag is the danger of wetting the patient's clothing and the bedclothes, especially the mattress. If care is taken to prevent this mishap there is no reason why it should not be used, with judgment of course, being careful to avoid destroying the vitality of the skin, since necrosis has been known to follow this practice. The rationale of relief, if there is such, is the anesthetic effect of extreme cold. The same applies to hot applications. The relationship of the surface of the abdomen at the site of the appendix to the deep-lying organ is so remote as to cast doubt on the efficacy of such local remedies. On the other hand, the application of cold, especially if prolonged, prevents the same satisfactory palpation as when the tissues have been left in their normal condition; and palpation it is well known is of great importance, since by this means only the skilled touch can often arrive at a conclusion.

With regard to chronic appendicitis, probably the most prevalent fallacy is that diagnosis is always easy. The truth of the matter is that it is not. Confusion with other upper abdominal conditions, with genito-urinary and pelvic disease, is liable to occur to the most astute and experienced diagnostician. In fact the frequent association of appendicitis with one or the other of these abdominal conditions has led to the question of cause and effect, a question which is by no means settled beyond doubt. Some authorities are convinced that such a disease as cholecystitis, for example, is the cause of disorders. The common cause no doubt is infection usually residing in the appendix itself.

You would probably consider it fallacious on my part to trace a connection between rheumatoid arthritis and appendicitis. But the relationship is not so remote as would seem. The feature most prominent in all cases of appendicitis is constipation. That autointoxication often results from neglect of this symptom is generally conceded. This autointoxication may lead not only to pathologic changes in the brain, the suprarenals, and the liver, and give rise to neurasthenic symptoms so often accompanying chronic appendicitis, but may even develop into a true bacterial infection, such as rheumatoid arthritis. I have in mind an instance (already quoted on another occasion) in which the relationship between the latter and a history of frequent attacks of appendicitis was so apparent as to establish it as a condition and not a theory. I do not stand alone in this observation. Rolleston[1] has recently referred to the association of the two disorders and agrees with Poynton, who considers the arthritis secondary to the appendicitis.

It is true that this is an extreme and perhaps rare occurrence, but it serves to emphasize the fact that diagnosis is beset with snares, especially because of the frequency of what we know as referred symptoms. This item of referred symptoms has led some authors to question the propriety of classing these cases with those of true chronic appendicitis, and to invent the term pseudo-appendicitis for this type of case. Why the "pseudo?" Why not tell

[1]Rolleston: *B. M. J.*, 1920, i, 317.

the truth and say the symptoms are puzzling, but the underlying cause is in all likelihood the appendix; then prove your stand at the operating table, and if it is not appendicitis find out what it is and give it a real name.

Another fallacy is that the pathologic condition of the appendix bears a constant correspondence to the duration of the symptoms, and therefore one need not be in a hurry in advising operation.

The observation has been made that early carcinoma of the cecum often gives rise to symptoms of appendicitis. Furthermore, carcinoma of the appendix, *per se,* presents no other symptoms than those of ordinary acute or chronic appendicitis. In fact I have on several occasions removed appendices as a routine measure, which microscopically proved to be carcinomatous, and which clinically had never presented any symptoms whatever. These conditions, fortunately rare, must be reckoned with, and also other untoward possibilities resulting from disease, all the more so in view of the ease and safety of the operation of appendicitis.

As to the operation itself, it is perfectly natural and justifiable that the personal predilection of the habitual surgeon for a method which has given him the best results should be the one advocated by him. It is for this reason that recent literature has been presenting various types of operation suitable for this disorder. Personally I can say nothing for or against them, having obtained perfectly satisfactory results with the methods I employ. The important thing is for the profession to recognize the truths about appendicitis, and for the surgeon to do the rest to the best of his ability.

In closing this discussion I have thought it not out of place to consider for a few minutes the terminal stage of acute appendicitis—peritonitis. It is understood that in every case of acute appendicitis in which the inflammatory process involves the serous coat there is a limited peritonitis in which serum is the inflammatory exudate: this is seen in the mildest cases where there is fever and a slight leucocytosis. In many of these cases to the inexperienced eye, the appendix does not seem to account for the condition, especially when we realize that the slightest peritoneal irritation results in the exudation of a serous fluid, the amount of which is commensurate with the degree of irritation, whether it be wide-spread or not. Normally the peritoneal cavity does not contain anything—that is, it is empty, the endothelial layer of the serosa being covered by a thin film of lymph; this tells us that in the presence of fluid in the cavity there is pathology.

Peritonitis is met with as circumscribed or diffused. In the presence of a circumscribed peritonitis and a localized definite point of extreme or exquisite tenderness, as in the presence of an actually inflamed, perforated, or gangrenous appendix, there being no constitutional or other contraindications, operation can be successfully done if the proper technique be observed, which, in short, means safeguarding the surrounding peritoneum against contamination by the proper disposition of gauze packing. The appendix having been removed, the introduction of drainage properly placed and closing the wound up to the exit of drainage, or putting in no stitches at all, completes the operation.

In diffuse or spreading peritonitis in the absence of a localized and definite point of distinct tenderness and the absence of peristalsis (a silent belly), the logical course to pursue is to let the patient alone operatively. The treatment therefore is to wash out the stomach and repeat the washings if there is nausea, vomiting, hiccough, or regurgitation of foul material, or there be great distention of the stomach. Normal saline solution by rectum, the Murphy method, ice-bags to the abdomen, morphia if there is pain, and nothing by mouth until there is restoration of peristalsis as told by ascultation of the abdomen or by the passing of flatus, is the only rational treatment—in fact the only treatment—if the best interests of the patient are to be

served. The best position for the patient is the sitting position, sling and pillow beneath the buttocks, with the pillow between the latter and the sling, and the back supported by pillows. If the condition of the patient is asthenic the addition of expressed beef juice and whisky to the normal saline solution is of benefit.

Those who operate in the presence of an acute, spreading, diffusing peritonitis after the first twenty-four or thirty-six hours of the onset of the peritoneal inflammation are not serving the best interests of the patient in the majority of instances, therefore will record a higher mortality than is warranted, as borne out by the experience of those surgeons who have and are still seeing the largest number of cases of this type of the acute abdomen. I am fully aware than an occasional case will get well in spite of the precipitous and ill-advised operation, yet this proves nothing other than that the operator has given the lucky patient a chance not to get well. Judgment is a much better asset for the surgeon than is operative skill; the combination of both makes the master.

The statement I so often hear expressed, "I operate all cases of acute appendicitis as soon as I can after I see them, mattering not how long or how sick they are," tells me at once to which class of surgeons the particular operator belongs. I am sorry I cannot write in a more complimentary way, but I write the truth as I see it.

In abscess cases treated as open wounds that have already filled in I do not close with suture. This practice does not prevent a subsequent hernia. In my experience all these cases have a hernia later. I think it is the better practice to repair the deformity when the tissues have recovered their normal. Before the repair of the hernia the wearing of an abdominal belt does but little if any good, other than the general support it affords.

In badly infected cases, in which the peritoneum in the immediate neighborhood of the appendix is green, and the pus, if present, is foul smelling, it is best to surround the infected cavity with rubber dam or oiled silk and lightly pack gauze into the enclosure, leaving the wound open, but carrying silkworm-gut through the margins of the wound and tying loosely to prevent the escape of the intestines. This packing is not removed for several days. If, in addition to the coffer-damming, rubber drainage tubes have been placed in the subhepatic space or between the diaphragm and the liver, and a glass tube in the pelvis, the latter should be removed when the contents, as told by aspiration, have become straw-colored. Should the glass tube contain pus at the end of twenty-four hours, it should be removed and replaced by a rubber tube carried down into the pelvis through the glass tube and the latter taken out by revolving it around the rubber tube. At the end of four to six days the rubber tube can be gradually withdrawn a little at a time, the projecting end cut off until it is entirely removed in three or four days' time. This is a very important part of postoperative technique. When the gauze making the coffer-dam is removed it should be soaked with hypertonic salt, or normal salt, solution before and when being removed. Removal of the gauze brings as a rule the sheet of rubber dam or oiled silk with it. The wound is lightly packed with gauze, healing taking place by granulation. Of course all of these patients have hernia, but a living patient with a hernia is better than a dead one without a hernia.

All cases of acute appendicitis do not present a clear diagnostic picture. In the upper abdomen the gall-bladder, pancreas, acute perforation of a duodenal or gastric ulcer, pyelitis particularly in women, internal hernia, a movable right kidney temporarily anchored, strangulation of a limited portion or of the whole omentum due to a twist on its long axis, a limited inflammation of the omentum, hematogenous infection of the right kidney, and, in the lower abdomen, diverticulitis of the sigmoid as well as an acute inflammation of Meckel's diverticulum, acute disease of the uterine

appendages, twisted-pedicle cyst, ruptured ectopic pregnancy, and so forth, may cloud the diagnosis.

I believe that, other things being equal, in all abdominal operations the appendix should be removed. I have upon a number of occasions in the past had to operate for acute appendicitis during convalescence from an abdominal operation where the appendix had not been removed. The following case illustrates this point: Operation, circular resection of the stomach for ulcer in a patient well along in years. I deemed it the part of better judgment not to remove the appendix. Three days following operation, peritonitis in the lower abdomen, which I was inclined to believe was the result of leakage from the stomach wound. Operation revealed a perforated appendix occupying the pelvis, with pus. Recovery prompt and uneventful.

### TREATMENT AFTER OPERATION.

As a rule there is very little to do after operation other than to continue that practiced before. No purgative or aperient medicine should be given until the patient passes flatus, which indicates that the peritonitis, if present at the time of operation, is on the wane or the height of the wave has been reached, and that this sound, so joyfully heard under these conditions, tells the storm is passing or has blown over and there will be clear sailing from now on. How easily and oftentimes can the storm be made to return by the ill-advised and occasionally fatal dose of purgative medicine. The lower bowel may be emptied by an enema gently given and nothing more. The upper bowel will take care of itself and will empty soon after nourishment is given by mouth, that is if not given until after the establishment of normal peristalsis. Can I say more? It is not necessary if the normal and the pathological physiology of the alimentary canal are understood.

I wish to sound a note of warning against allowing sanctioning, advising, arguing with the patient, parent, or guardian as to not operating immediately or shortly after the recovery from an attack. I so frequently hear this advice given that I shudder at the boldness of he who so advises. The greater one's experience is the more he realizes how dangerous such advice is. How often have I been called to operate a patient in the second or third attack where this advice was given after recovery from the first attack, to find the patient dying from a peritoneal toxemia. Every individual the subject of an attack of acute or subacute appendicitis should be operated upon, if not during, then immediately after recovery from the attack. Many a precious life has been sacrificed by this pussyfooting. He who waits is waiting for an overt act, a policy that cost many lives in the World War, but I question if any more than have been sacrificed in the appendiceal war still raging. He who gives such advice is gambling with human lives, a damnable policy. Second only to this advice is purging the bowel in the acute abdomen, which often makes out of that portion of the peritoneal cavity in communication with the lumen of the appendix through the perforation a cesspool, a toilet. How horrible! I have not magnified this appendiceal picture. I question if I have painted the picture strong enough to always assure its recognition.

# The Drug Armamentarium of the Endoscopist

BY CHEVALIER JACKSON, M.D., F.A.C.S.

Professor Laryngology, Jefferson Medical College; Professor Bronchoscopy and Esophagoscopy, University of Pennsylvania Graduate School of Medicine;

AND

WILLIAM H. SPENCER, M.D.

Assistant Demonstrator Laryngology, Jefferson Medical College; Instructor Bronchoscopy and Esophagoscopy, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pa.

The relief of conditions which the endoscopist is called upon to treat is usually accomplished by manual mechanical procedures, so that the number of drugs he employs is limited. There are a few drugs, however, whose indications and contraindications deserve special comment, since they may be of the greatest help to the patient and the surgeon, or when improperly or inopportunely employed may result in danger if not fatality.

*Anesthetics.*—The question of the use of general anesthetics in endoscopic procedures must be decided by the operator with reference to his experience and degree of skill in this particular kind of work, and secondly with regard to the temperament of the patient. The endoscopist must determine what is best for that particular patient under the circumstances then existing. In the Bronchoscopic Clinic, general anesthesia is never used. The coöperation of the patient during the endoscopy offers the greatest advantage; even little children will cough or hold the breath when requested and in many ways facilitate the work.

If a general anesthetic is to be used ether is perhaps the safest to select. The anesthesia should be started in the usual way with the gauze or cone face mask and pushed to the point where the lower jaw muscles are relaxed so that the mouth can be opened, without force, sufficiently to allow the insertion of the laryngoscope and through it the bronchoscope. Ether vapor is now insufflated into the bronchoscope through the small branch tube by means of the vaporizer shown in Fig. 1. Chloroform can be used in the same manner, but because of its greater depressant action on the respiratory and cardiac centers its use is attended by greater risk.

Nitrous oxide with oxygen may be used to initiate the ether anesthesia, but it has been known to create marked rigidity of the jaws, which greatly interfered with the insertion of the endoscopic tubes. Insufflation of the mixed gases through the bronchoscope has also been tried with a variable degree of success; the free mobility of the head, neck, and shoulders necessary to endoscopic work is, however, often impaired by the tendency to rigidity mentioned above. It is usually necessary to obtain relaxation by the addition of a small amount of ether to the nitrous-oxide-oxygen mixture.

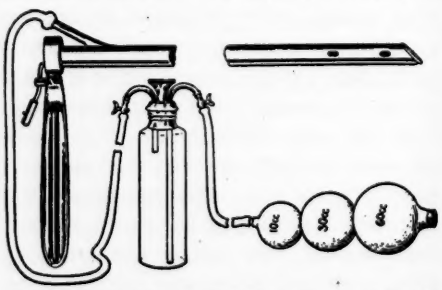

FIG. 1.—Dosimetric anesthetizing attachment for the bronchoscope. Devised by Dr. T. Drysdale Buchanan. The small branch tube ends in the lumen of the bronchoscope, and not in an auxiliary canal. All of Jackson's bronchoscopes are now made with this small branch tube, as it has been found very useful for bronchoscopic oxygen insufflation.

It is a fundamental precept that dyspnea is a contraindication to the administration of a general anesthetic. If a dyspneic patient be given a general anesthetic respiration will cease with the inhibition of voluntary muscle control, and the consequent loss of the aid of accessory muscles of respiration. Emergency tracheotomy

may then be required, unless facilities are at hand for bronchoscopic insufflation of oxygen and amyl nitrite.

*Narcotics.*—Great help is afforded in bronchoscopy by the lessening of the excessive cough reflex caused by the presence of the tube and the manipulation within the air-passages, and by allaying any undue apprehensions which the patient may have. For this purpose the derivatives of opium are invaluable. Preceding laryngeal operations and bronchoscopy in the adult it is our practice to give from ¼ to ⅜ of a grain of morphine in combination with 1/150 of a grain of atropine hypodermically one hour before operation. Children, contrary to our former views, seem to stand opiates well, and we have found that ⅛ of a grain of morphine guarded with 1/200 of a grain of atropine, given a well-developed child of five years one hour before operation, greatly subdues the excitability and the tendency to excessive coughing. Younger children are given proportionately smaller doses, while infants may be given 2 to 4 minims of laudanum or a corresponding dose of paregoric. This providing the patient be not dyspneic, for narcotics as well as general anesthetics are contraindicated when any difficulty in breathing exists. As Chevalier Jackson has said, "The cough reflex is the watch-dog of the lungs," and if not drugged asleep may be depended upon to rid the lower air-passages of any contained or aspirated secretions. Furthermore the opium preparations are direct depressants of the respiratory function and tend to inhibit the exercise of the voluntary accessory muscles of respiration upon which life at this time may be dependent.

Morphine and atropine inhibit the secretion of the salivary and mucous glands and thus help to rid us of this source of annoyance during the operation.

These drugs and other antibechics are, however, never to be given to children after bronchoscopy, and particularly are they pernicious after tracheotomy. The thickening and drying of the secretions which they cause render it almost impossible for the child to dislodge them from the air-passages by its feeble bechic efforts.

Scopolamine 0.00065 gm. with morphine 0.0324 gm. given hypodermically one hour before operation is a convenient anesthetic for foreign body practice work on a small dog. This dose may be repeated if necessary.

Local anesthesia is quite sufficient for laryngeal or bronchial manipulations in the adult, while no anesthetic or sedative is required for esophagoscopy on either the adult or child.

The use of cocaine is contraindicated in children under fifteen. It seems to have a particularly toxic and sometimes fatal action, and the numerous reports of death following the local application of a cocaine solution to the throat in children confirm the dictum against its use. Endoscopic procedures are not painful if skilfully and expeditiously performed, but if choice must be made between cocaine and ether, the latter will be the safer in children.

General anesthesia for tracheotomy is not only unnecessary, but its use in part accounts for the reports of the high mortality attending this life-saving operation. The danger may be primary, from asphyxia occurring when the voluntary use of the accessory muscles of respiration ceases; or secondary from aspiration of blood, pus, or secretions during the time the cough reflex is drugged asleep.

Tracheotomy requires only skin infiltration for its painless performance; there being little sensation in the deeper structures of the neck. Excellent anesthesia can be obtained by the intradermal injection of apothesine in a 2-per-cent solution. This drug has the advantage of allowing sterilization by boiling, and it has shown no toxic action even when used in quantities of a drachm of a 2-per-cent solution in an infant of seven months. The addition of adrenalin to the solution for infiltration anesthesia is of no advantage and is sometimes a distinct hindrance.

Vasoconstriction during tracheotomy allows us to overlook many small vessels which may be the source of annoying oozing some hours after the operation. It has further been suggested that some of the observed toxic effects accompanying infiltration anesthesia may perhaps be due not to the particular anesthetic drug used but to the adrenalin combined with it.

Schleich's fluid, novocaine, or 1/10-per-cent cocaine in normal salt solution may be used; the toxic effect of cocaine on children must, however, be kept in mind.

The injection of a cocaine solution into the lumen of the trachea, through one of the interannular membranes, for the purpose of preventing the coughing which occurs when the trachea is opened, is mentioned only to be condemned. Associated with dyspnea for which the tracheotomy is performed there is defective drainage and an accumulation of secretions in the lower air-passages. These secretions can only be removed by the bechic efforts of the patient, and if the cough reflex be not impaired the accumulated secretions will be expelled and any blood, pus, or other fluids will be prevented from entering the bronchi from without. Most tracheotomies are done on children in whom the use of cocaine is contraindicated.

Amyl nitrite will be found the quickest acting aid to the reëstablishment of respiration in asphyxia. Amyl nitrite pearls should always be included in the surgeon's tracheotomy box.

In the Bronchoscopic Clinic, laryngoscopic and bronchoscopic procedures on the adult are attended with the following preliminaries:

1. A mild cathartic is taken on the day before operation.

2. Patient enters the hospital on the morning of the operation without breakfast, and is put to bed.

3. One hour before operation ¼ to ⅜ of a grain of morphine sulphate with 1/150 of a grain of atropine is given hypodermically. Care must be taken that the injection be not made into a vein.

4. In the operating-room the pharynx and epiglottis are twice painted with a 10-per-cent solution of cocaine, at intervals of about three minutes.

The direct laryngoscope is now inserted, and by means of a gauze swab on a long carrier the interior of the larynx and trachea is anesthetized with 20-per-cent solution of cocaine. Two applications are usually sufficient. Further anesthetization of the bronchi, if required, may be carried on in like manner by passing the swabs through the bronchoscope.

For esophagoscopy on either adult or child no sedative or anesthetic is used. No food or water should be taken for at least eight hours preceding the esophagoscopy.

Laryngoscopy and bronchoscopy in children are done without anesthesia, local or general. In selected non-dyspneic bronchial foreign body cases a small dose of morphine is given as mentioned under narcotics. Especial avoidance of narcotics and antibechics is made in arachidic bronchitis cases.

After laryngoscopic and bronchoscopic procedures the inhalation of steam laden with the vapor of the compound tincture of benzoin is very soothing. It is advisable also to give in the evening a grain of calomel, followed in the morning by citrate of magnesia or magnesium sulphate. All cases showing any degree of dyspnea require constant watching by a special nurse. This is particularly important for the children who have had portions of nut-kernels removed from the bronchi. There here exists a peculiar intense, edematous, purulent inflammation of the larynx, trachea, and bronchi which we have termed "arachidic bronchitis."[1] Because of its swollen air-passages and feeble bechic powers, the child is unable to expel the thick, viscid, purulent secretion, and tracheotomy may be required to pipe air to the lungs and to drain the lower air-passages of the accumulating secretions.

Even when tracheotomy has been done,

[1]Jackson, Chevalier, and Wm. H. Spencer: *Journ. Amer. Med. Assoc.*, Aug. 30, 1919, vol. 73, pp. 672-677.

constant watching and attention is necessary to aid in the removal of these thick secretions through the tracheal wound. It is necessary in some of these cases to actually aspirate the secretions from the trachea. We have found that the secretions are sometimes made more fluid and more easily expelled by dropping into the tracheal cannula a little of the following mixture:

Sodium bicarbonate, gr. 10;
Glycerin, drachm 1;
Normal salt solution (sterile), enough to make ounce 1.

Ammonium carbonate has been used with benefit in these cases also. It has the double value of being a cardiac stimulant as well as an expectorant. Caffeine is also helpful as a respiratory stimulant. The internal administration of 10 grains of sodium bicarbonate at two-hourly intervals tends also to liquefy the tracheobronchial secretions. Every effort must be made to make the child cough and rid its bronchi of the secretions; from failure to realize this mechanical principle of "keeping the pipes clean" many a child has been allowed to die; the cause of its demise being ascribed to bronchopneumonia.

When there is a tendency to crust formation in the trachea with a rather scanty secretion, the instillation into the tracheotomy tube of a few drops of sterile liquid petrolatum will be found to help greatly.

The inhalation of steam impregnated with compound tincture of benzoin is very soothing whenever laryngeal inflammation exists. In children it is sometimes best used by directing the jet of steam into a croup tent, made by draping sheets over sticks fastened to each corner of the bed. If the patient is very dyspneic, however, the confinement, stuffiness and extreme humidity of the croup tent seems to increase the distress; in which case we dispense with the tent and simply vaporize the steam in the room, directing the jet over the bed. After tracheotomy it is helpful to use the steam vaporizer in the room at intervals for the first two or three days, especially in those cases in which there is much tracheobronchial inflammation. The secretions seem to be kept somewhat more moist and are more easily expelled through the tube. If there is much tendency to dryness, however, the instillation of oil into the trachea will be found to afford greater relief and should be used in conjunction with the steam.

As a dehydrating agent in the watery edema of the larynx sometimes accompanying the exanthemata and seen in some types of nephritis, the careful, judicious hypodermic administration of pilocarpine has proved of value. It should be guarded by cardiac stimulation, and if edema of the lungs threaten its physiologic antagonist—atropine—should be promptly given. By producing free diaphoresis and salivation, the tissues in some of these cases may be so depleted of water as to produce resorption of the laryngeal edema and subsidence of the dyspnea, thus avoiding tracheotomy.

The high fever so commonly seen in foreign body cases has its only treatment in the removal of the intruder, as will be seen by the chart of a nine-year-old boy (Case No. Fbdy. 746) who had had a tack in the bronchus for one week (Fig. 2). Fever mixtures are of no avail, but hyperpyrexia, of course, calls for sponging and cooling applications to the head until arrangements can be made for the safe removal of the foreign body.

Bismuth subnitrate given dry on the tongue and swallowed without water, in doses of 10 grains every four hours, will coat over any abrasions or ulcerations in the esophagus produced by foreign body or other cause and will greatly relieve any pain therefrom. It has a slight antiseptic action which may be enhanced by the addition of about 1/10 of a grain of calomel to the dose. If a greater analgesic action is required, the combination of 2 grains of orthoform or anesthesin to each dose of bismuth subnitrate may be made. In esophagitis or esophageal ulceration the diet should be restricted to liquids until the acute inflammation subsides. The dissolving of bits of ice in the mouth will also give

great comfort in both laryngeal and esophageal inflammation.

Intrabronchial insufflation of dry bismuth subcarbonate through the bronchoscope has proven of considerable value in mapping out the bronchial tree in cases in which a

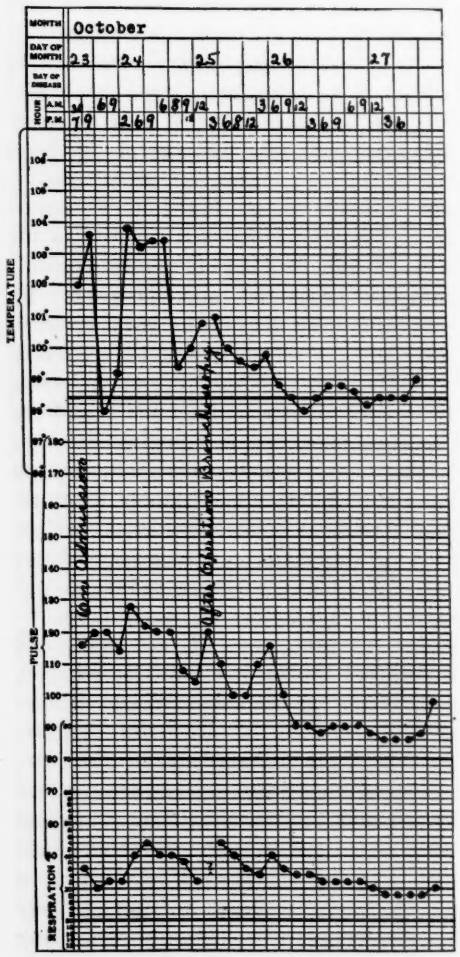


FIG. 2.—Case No. Fbdy. 746. Chart of a boy of nine years showing the rapid return to normal of the temperature, pulse, and respiration after the removal of an upholsterer's tack from the right main bronchus, where it had remained for one week.

foreign body is far in the upper lobe bronchus, or in small bronchi that cannot be entered by the bronchoscope. No untoward symptoms have been observed, and the bismuth totally disappears from the lungs by expectoration in twenty-four hours. This method is available in an enormous field for investigation of the action of the living cilia, in health and disease, the lymphatic drainage of the lung, and the mapping out of bronchiectatic and abscess cavities.[1]

The local application of silver nitrate in 10-per-cent solution or of argyrol in 20-per-cent solution to ulcerations or erosions in the esophagus is very helpful in healing these lesions. It is not infrequently found that hiatal esophagismus (so-called cardiospasm) is associated with esophagitis, erosion, or ulceration of the esophageal or gastric wall; endoscopic application of one of the above mentioned drugs is indicated to heal the lesion before attempts at dilatation are made. In addition to the other medicaments found useful in the treatment of phrenospasm (so-called cardiospasm) we have found the administration of benzyl-benzoate 20-per-cent alcoholic solution to be of some aid as a supplementary to mechanical dilatation. It may be given in water, milk, or fruit juices, in doses from 20 to 60 drops, and seems to have a definite antispasmodic action, although we have observed no cure obtained from the use of the drug alone. Atropine, hyoscine, and bromides are helpful in some of the cases. Overdilatation remains the one tried and true means of cure in these sometimes trying cases. Relapses are prone to occur. Attention must be particularly paid to the underlying nervous condition which is almost always the cause of the condition.

The local application of diphtheria antitoxin to the trachea and bronchi after the bronchoscopic removal of obstructive diphtheric membrane has been the means of saving numerous lives which would have been lost in the prebronchoscopic days.

Bronchiectasis and lung abscess are much benefited and in certain cases cured by endobronchial lavage with warm normal salt solution or a solution of

Phenol, 15 grains;
Lugol's solution, 2 drachms;
Salt solution, 1 pint.[2]

[1]Jackson: Trans. Amer. Laryn., Rhin., and Otol. Soc., 1918, p. 222.
[2]Mayer: *N. Y. Med. Jour.*, Oct. 19, 1918.

About 10 ounces are used at each treatment—injected slowly through the bronchoscope, and being removed by the drainage canal of the special model bronchoscope. Dichloramine-T has been suggested for use in the bronchiectasis, but Meltzer has shown that chlorine-containing compounds are particularly irritating to the lower air-passages, so that they should be cautiously employed and in very dilute solutions.

Gratifying results have been obtained in the treatment of gangrene of the lung by the intrabronchial injection of 20 to 25 Cc. of an oily solution of gomenol 1:10 or 1:5. Menthol 1:100 and guaiacol 1:20 in oily solution have also been used, but with not so beneficial an action. The injection is given after thorough cocainization of the larynx and trachea.[1]

Bronchial asthma has been treated with some degree of success by the endoscopic application of cocaine and adrenalin to the mucosa of the larynx, trachea, and bronchi. In cases which resist all other forms of treatment this method may be tried. Freudenthal recommends the injection into the bronchus of 10 Cc. of the following mixture at twice weekly intervals:

Orthoformi, 6.5;
Mentholis, 0.5;
Formalin, 0.5;
Ol. amygdal. dul., 15.0;
Gum acaciæ, 10.0;
Aquæ dest., q. s. ad., 60.0.
M. F. Emulsio.

Propæsin or anesthesin may be substituted for the orthoform. Novocaine has been employed instead of cocaine with good results. The simple bronchoscopic removal of secretion gives relief from the immediate symptoms, but has no effect on the recurrence of the attacks.

Cathartics should never be given when foreign bodies pass into the stomach and intestines, neither should the usual diet be in any way altered. The fecal mass should be of such consistence as to surround the foreign body and protect the mucosa from injury. Purgatives will liquefy the feces, and feeding of unaccustomed foods to infants will cause gastroenteritis with like effect, thus defeating nature's protective efforts. If stimulation of bowel action seems necessary, this may be accomplished by a low enema or by a suppository. Ninety-eight per cent of foreign bodies which reach the stomach or intestines pass uneventfully per rectum if nature's efforts at protection are not thwarted by injudicious interference. It is, however, imperative that the progress of the object be watched daily with the fluoroscope and that a careful lookout be kept for signs of obstruction or intestinal perforation, which will require prompt surgical intervention do they occur. That the stools must be watched in the interim is understood.

A word should be said regarding the diet after gastrostomy done for feeding in cases of high degree of esophageal stenosis. It is not sufficient to place a tube in the stomach and depend upon milk as the only pabulum. Fruit and vegetable juices should be given daily for their vitamine content; strained soups and cereals, thinned mashed potato, meat juices and olive oil should be part of the diet. Sugar should also be placed in such articles as would ordinarily be sweetened, for sugar is one of our most concentrated foods. With such a varied diet the nutrition can be kept at a high level for an indefinite period.

Primary cancer of the lung and bronchi has been treated by the endobronchial and intravenous injection of the insoluble sulphate of radium.[1] It has been shown that the suspended particles of the insoluble salt are arrested in the pulmonary capillaries and remain there for more than a year. An appreciable diminution in the congestion and size of the tumor and a lessening of the hemoptysis has been reported, but no cures have been effected.

Whooping-cough,[2] so long considered one of the general infections of childhood, has recently been suggested as properly

[1]Guisez: *La Presse Médicale*, Feb. 26, 1921, p. 162.

[1]Guisez: Bull. D'Oto-Rhino-Laryngol. et de Broncho-Oesophagos. Tome xviii, No. 1, September, 1919, p. 9.
[2]Yankauer: Trans. Am. Laryn., Rhinol., and Otol. Soc., 1920, p. 220.

placed in the realm of the laryngologist, since its lesion, when uncomplicated, is found to consist only in an acute inflammation of the larynx. Great amelioration of the number and severity of the laryngeal spasms has been observed to result from the intralaryngeal injection of a four-per-cent solution of antipyrin. A daily injection is given in children with the aid of the direct laryngoscope, at which time thirty minims of the solution are directed upon the vocal cords. If seen early it is claimed that the disease may be aborted. In any case the period of the disease is greatly shortened by this method of treatment. Pertussis in the adult may be treated by dropping the solution of antipyrin into the larynx from a curved laryngeal dropper, using the mirror as a guide.

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# The Diagnosis and Treatment of Conditions of the Heart Complicating Pregnancy

BY EDWARD P. DAVIS, M.D., F.A.C.S.

Professor of Obstetrics in the Jefferson Medical College and Hospital, Philadelphia, Pa.

It is no uncommon occurrence to have a young woman in her first pregnancy develop a heart murmur and complain of irregular and rapid action of the heart. On examination, her attending physician may find a murmur which it is difficult to localize, but which may usually be referred to the mitral area. The pulse is rapid, its tension variable, often slightly raised. The examination of the urine may be negative, but a slight serum albuminuria may be present. The pregnancy may be progressing normally so far as the growth of the uterus and its contents is concerned. Shall a diagnosis of valvular disease of the heart be made? And if so, what measures shall be taken to safeguard the patient?

The question naturally arises as to whether the history of the patient will give a positive answer. In some cases a severe or repeated attacks of rheumatism in early life may be present; in others, chronically enlarged tonsils or repeated attacks of tonsillitis until the tonsils are removed; in some patients a chronic condition of ill-health, whose exact cause is not clear.

The difficulty arises in making a positive diagnosis of organic disease of the heart in the presence of the clinical findings already quoted and the presence or absence of the history narrated.

It may make this matter clearer if we recall for a moment the physiology of pregnancy. Those who have studied the subject carefully estimate that during pregnancy the blood increases one-twelfth in volume. The old belief that the heart hypertrophies is now usually denied. Some enlargement of the left ventricle may be present, but a distinct and essential hypertrophy cannot be proven. Obviously, the growing tumor in the abdomen must alter the physical conditions of the circulation, and the result of the increased quantity of blood, increased demand upon the heart, and the altered physical conditions is to favor the occurrence of moderate dilatation of the heart and its consequences. So far as we now know, this is the rational explanation of the indefinite murmurs and somewhat rapid and disturbed action of the heart often seen in pregnancy in those women who are not perfectly sound.

The general examination of a pregnant patient should always include an examination of the heart and the vascular system by taking the blood-pressure and observing the presence or absence of dilated veins. In cases in which the conditions already reported are present, without reason to believe that organic disease has developed, the hygiene of pregnancy should be strictly

enforced. It is of especial consequence in these cases that constipation and toxemia be avoided. Such remedies as promote the peristalsis of the intestine and encourage its daily and thorough evacuation should be employed. Moderate exercise freely in the open air, abundant rest, including a good night's sleep and an hour or two about midday, are all necessary, and the influence of cool bathing by sponging or rubbing upon the peripheral circulation should not be neglected. Toxic foci in the nose, throat, teeth, thyroid, appendix, gall-bladder or Fallopian tubes should be dealt with. The use of drugs is rarely necessary, but the nitrogen partition of the urine, a 24 hours' specimen, or the examination of the blood for its protein substances, is important. Diet should be regulated in accordance with the temperament and digestive power of the patient and the results of the study of metabolism. These patients are bad subjects for infection, and during epidemics of influenza they may become severely ill. Under ordinary circumstances, if the patient has a naturally sound constitution and her hygiene is good, such a condition is in no way serious and will gradually disappear as pregnancy advances.

In considering actual lesions of the heart complicating pregnancy attention must be first drawn to those of congenital origin. One thinks at once of the patulous foramen ovale, but this is not the important congenital lesion in these cases.

When the foramen ovale does not completely close, the individual is left with a mixed blood imperfectly aerated. If this condition is pronounced, the general resisting power of the patient is so diminished that she falls an early victim to infection. Few of these girls live beyond puberty, and hence these cases are very rarely seen in parturient women. In the milder grades, where the asphyxia is slight, patients show a surprising tolerance to the condition. They may grow to adult life and bear children successfully.

The most important congenital lesion in these patients is that affecting the mitral orifice and producing mitral stenosis. This may arise from a congenital malformation, and if the abnormality be slight, it may not become apparent until delivery or after the patient's labor. The same is true of aortic insufficiency, which may show no sign until the patient comes to the test of labor. In some cases through lack of development the coronary arteries supplying the heart are abnormal or deficient, and corresponding lack in the normal blood supply of the heart is present.

A careful history of pregnant patients is very useful in detecting congenital abnormalities of the heart. If the child has not been able to share with others in active exercise, or if the child has had an obstinate anemia, with enforced rest, a suspicion should be excited that a congenital heart lesion may be present.

The diagnosis of such condition is made by a thorough and careful examination and by the study of an accurate history of the patient's previous health. When such a condition is found, attention should also be given to the peripheral circulation. In some cases the vessels themselves are diseased, and in others a disordered condition of the heart produces a chronic state of derangement in the vessels. Where there is discoloration of the skin to any marked degree, and this is not the result of some infection or pigmentation, one must be suspicious that the circulation is at fault. In cases of congenital heart lesion, the skin symptoms are important, for if they be present it is a sign that compensation is not maintained. The patient may be able to take her customary exercise, but the abnormal color of the skin will indicate that the peripheral circulation is badly supported. On the other hand, in these congenital cases, if there be no asphyxia or discoloration of the skin, it is evidence that decompensation has not occurred.

A patient with a congenital heart lesion complicating pregnancy should follow a strict hygiene. Probably the first question put to the physician will be, if the patient is not married, whether marriage is justi-

fiable in view of the risks accompanying pregnancy. The answer to this must depend entirely upon the circumstances of the case. If the patient is young, of good general health and without distinctly bad heredity, if no other lesion can be found, if she is so situated that she can and will carry out directions for hygiene, then a favorable prognosis may often be given. If, however, these conditions are not present, conception would be accompanied by a very considerable risk to life and a positive risk to health. It must further be remembered that each pregnancy and parturition, to a woman having a heart lesion, means injury to health and often the shortening of life. To this rule there is practically no exception.

If pregnancy occurs in a woman with a congenital heart lesion, what should be her care? First in importance the avoidance of toxemia; regulation of the diet; plentiful use of water; proper attention to the functions of the bowels; outdoor exercise; rest, and the correction of anemia, if present—all these are matters of very great importance. Daily rest at a regular time, in addition to good sleep at night, is imperative. Patients should be thoroughly examined at least once in two weeks, and should discoloration of the skin, rapid or feeble heart action, disturbance in breathing or other essential disturbance develop, pregnancy should be terminated immediately.

In acquired diseases of the heart complicating pregnancy, the most unimportant is mitral regurgitation. This often follows rheumatism in childhood or at adolescence. Sometimes there is no rheumatic history, but in place repeated attacks of tonsillitis. On examination the usual signs of mitral regurgitation are present. The presence of a murmur over this area is not of primary importance in diagnosis, prognosis, or in suggested treatment. The question is not the presence or absence of the mitral lesion, but whether compensation is present.

In the case of a young woman of good general constitution with no history of loss of compensation or distress, a mitral regurgitation of moderate development is of little importance in pregnancy or labor. The patient's general health should receive careful attention, especially with the view of avoiding the development of toxemia. Exercise in moderation and in the open air under good conditions should be encouraged. The general hygiene of pregnancy should be strictly enforced and especial attention must be given to ample rest for the patient. Signs of danger would be in irregular, rapid and laboring action of the heart and increase in the extent and severity of the symptoms.

Should compensation rapidly fail in mitral regurgitation cases, the indication at once arises to terminate the pregnancy. This should be done in the manner least calculated to bring strain and suffering upon the patient. If the patient be a multipara, with dilated and dilatable birth canal, it might be possible to bring on labor by introducing an aseptic rectal tube in the lower segment and cervix, or possibly by the use of bougies. While labor is developing, the patient should be kept free from pain by the use of morphine and atropine hypodermically. Bags should not be employed, as they tend to produce severe suffering. If the patient's dyspnea is severe and she suffers greatly from oppression, in multiparæ it would be sufficient to rupture the membranes and to give morphine. The patient would gradually come into labor without great distress. If the patient is a primipara, not young, and with a long and resisting cervix, no attempt should be made to induce labor. If symptoms are so urgent that prompt delivery is demanded, the method of election is the performance of Cæsarean section. In multiparæ where the cervix is not yielding because of scar tissue, a similar indication arises.

If section is to be the mode of delivery, the question of sterilization must be considered. In women who have children, who are about forty years of age, in whom the heart has failed considerably in strength during the pregnancy, it is best to deliver by section, accompanied by sterilization. In

women who have no children and who are comparatively young, this should be avoided. Sterilization is to be effected at the request of husband and wife and with the approval of a physician of experience and skill in obstetrics.

The method of anesthetizing will require special consideration. If compensation has badly failed, it will be safest not to secure anesthesia by inhalation. Local anesthesia is the method of choice, accompanied by sterilization, and this may be done as in the following case:

A woman, aged about twenty-five, had borne one child in spontaneous labor. She had developed an aortic lesion and also a mitral stenosis early in her second pregnancy. Compensation had been good, but the lesions were so much worse than in the first pregnancy that the labor was dreaded by the patient and her physician. It was also deemed advisable to terminate labor with sterilization. The patient was prepared in the usual manner and the abdominal surface anesthetized by novocaine one-half per cent, with adrenalin one to one thousand. The incision through the abdominal wall produced no distress. The uterus was not turned out of the abdomen, but the tissues were held tightly to the side of the uterus to prevent the leakage of its contents. The incision through the uterine wall was painless. The child was removed without difficulty and the uterus emptied of its contents. When the uterus was slightly rotated to bring the broad ligaments into easy access, considerable pain was felt and it was necessary to infiltrate the ligaments separately. Both Fallopian tubes were completely dissected out, beginning at the uterine end and excising that portion of the uterine wall through which the tube passed. The two layers of the broad ligament were brought together by continuous catgut suture. Little difficulty was experienced in closing the abdominal wall. The patient complained more of nervousness and impatience to have the operation over than of pain. To forestall the drop in blood-pressure which always accompanies the emptying of the uterus, while the operation was done the arm was infiltrated and normal salt solution was given in a vein. The patient's recovery was complicated by the removal of a badly decayed tooth, which relieved her greatly; otherwise her recovery was without incident. The operation had been preceded by a hypodermic injection of morphine and atropine, and during operation the patient received strychnia, digitalin and atropine in one dose hypodermically. The after-care consisted in the hypodermic use of strychnia, digitalin, and codeine given together. Glucose and sodium bicarbonate, each five per cent, were given by bowel; morphine and atropine were used for positive pain or distress. Liquid food, but no milk, was administered. Some prefer to use morphine and scopolamine instead of morphine and atropine. When this is done the patient's ears are plugged with cotton, the eyes are bandaged, and an effort is made to render her insensible to sight, sound, and feeling.

In cases of aortic and mitral stenotic disease, the question of sterilization is sometimes difficult to solve. If the patient has no child and is comparatively young and in good circumstances and surroundings, an effort should be made to prolong the pregnancy, certainly to viability. To accomplish this, a thorough study of the individual must be made and strict rules of hygiene enforced. Tendencies to gout, constipation, toxemia, anemia, and nervous excitability must be guarded against. Gentle exercise in the open air by walking is indicated in all weather, except severe storms. A plentiful supply of fresh air in the sleeping room is imperative. From one to three hours rest midday should be taken, and the patient should avoid crowded and overheated rooms. The patient should be suitably clothed in cold or hot weather and should lead a quiet, regular, but essentially cheerful life. She should be encouraged to believe that she will go to term. Sudden and great changes of temperature are to be avoided and also care and responsibility. By these means pregnancy can often be

carried on to beyond viability, or even to full term. If, at any time, symptoms of decompensation occur and become pronounced, pregnancy must be terminated as soon as possible.

In estimating the gravity of symptoms of decompensation, the tendency to congestion accompanying pregnancy in all patients must not be forgotten. Furthermore, the extraordinary improvement which often follows rest in bed must not be neglected. When, therefore, symptoms of decomposition appear, the mistake must not be made to terminate pregnancy immediately without first giving a trial of physiological rest. The patient should be kept in bed throughout the entire day and night, the food should be of the simplest and most digestible, the functions of digestion should be regulated in the least disturbing manner, and in addition she should be assured that she can be promptly relieved of her distress and that the case will terminate favorably both for the child and for herself.

While the patient is in bed and under observation, the opportunity should be utilized to study thoroughly her processes of excretion. The urine and blood urea should be studied and a record kept of the blood-pressure with the patient at rest. If the symptoms which appear are threatening, digitalis and belladonna may be given in moderate doses. If the patient be sleepless, it must be remembered that in these cases by improving the action of the heart the patient will often be enabled to sleep. If sedatives are necessary, care should be taken not to give those which are depressing, but some form of opium is usually best.

When, in spite of such precautions, the patient does not improve, but symptoms become, if anything, more threatening, pregnancy should be terminated.

Every effort should be made to secure permission for a radical operation, including sterilization. If this is persistently denied and the decision is made to induce labor and terminate pregnancy by vaginal delivery, the choice of a method of inducing labor becomes of considerable importance.

The cardinal factor in the management of these cases in labor is to prevent pain and mental and physical distress; hence a method of inducing labor which causes great suffering and will seriously disturb a patient should not be selected.

While considerable attention has been devoted of late to the induction of labor by the administration of quinine, castor oil, and pituitrin, this method is too uncertain and too disturbing to be employed where heart disease complicates pregnancy. The use of dilating bags is also contraindicated, because their pressure frequently causes severe pain. The best method is to dilate the cervix moderately under analgesia by morphine and atropine or temporary anesthesia by nitrous oxide and oxygen, separate the membranes so far as possible from the wall of the uterus, and then insert into the lower uterine segment a rectal tube or soft-rubber tube prepared for the purpose. So soon as nagging pains begin, the patient should have a hypodermic injection of morphine and atropine; usually one-sixth grain of morphine and one-one-hundred-and-fiftieth grain of atropine is sufficient. The physician should remain in the house or hospital with the patient so soon as the morphine is given. In some cases the cervix relaxes quickly and the expulsion of the child may occur rapidly and unexpectedly.

If such is not the case, labor must not be allowed to delay. If the cervix is soft, so soon as three-fourths dilatation is present the membranes should be ruptured and active labor encouraged. It is well to avoid the use of ergot and pituitrin for this purpose with these patients. Both increase pulse tension and would add to the burden of the overladen heart. Strychnia, hypodermically, is an excellent tonic under these conditions.

The effect of anesthetics with heart patients in labor can scarcely be appreciated by one who has not observed it. Ether in small quantities is a better stimulus to labor

under these circumstances than would be ergot or pituitrin. If such inhalation does not materially aid matters, and assist in bringing about prompt expulsion of the child, then the patient should be anesthetized with ether and oxygen and delivery effected by forceps or version. It has long been considered advisable to allow such a patient to lose a moderate quantity of blood at labor. The theory upon which this is based is the relief of the overburdened heart by lessening the quantity of the circulating fluid. Should the patient be toxic, a removal of blood from her body will also lessen her toxemia. Whether this theory be correct or not, patients seem better if a moderate discharge of blood occurs at the time of labor. Should the condition be threatening and assistance and appliances are available, there can be no objection to bleeding followed by intravenous administration of saline solution.

If a physician is called to a patient in labor in an emergency and finds her asphyxiated, struggling for breath, apparently in danger of death and begging for relief, and the question of hospital care is beyond consideration, what is the first duty of the physician? Fortunately in this case the thing which is best to do is that which can readily be done and which will give the patient relief. The first impulse might be to give a stimulant, but experience shows that a medicine which soothes the nervous system is of prime importance. Morphine and atropine, hypodermically, can be given at once and will affect the patient in from ten to twenty minutes. No examination should be made until the patient is wholly or partly relieved of her immediate distress. If she then be examined and the cervix is found soft and half or two-thirds dilated, the membranes unruptured, the amniotic liquid should be allowed to escape by rupturing the membranes, the patient placed completely under the influence of ether and oxygen, and delivery effected in the most prompt and least injurious method possible.

At the moment of labor, or immediately after, the patient is threatened with danger of pulmonary embolism. Frequently nothing can be done to prevent this serious complication or escape its consequences. Prompt stimulation by the hypodermic use of strychnia, some form of digitalis and atropine, the application of heat over the heart, inverting the body, bandaging the limbs, artificial respiration, inhalation of oxygen, the use of an electric current, if available, all should be employed as promptly and vigorously as possible. The mortality of this complication reaches almost 100 per cent. The signs and symptoms are sudden failure of respiration, the heart often continuing to beat. If efforts are promptly made to reëstablish breathing and sustain the action of the heart, a few of these patients recover from the attack. The suddenness of the attack and its tragic termination combine to make this one of the most serious and dramatic emergencies of obstetric practice.

The after-treatment of these cases must be decided upon the individual merits of each case. If the mother has an abundant supply of milk, the breasts without irritation, and if she is interested in nursing the child, she may be permitted so to do. If, however, the breasts fill with difficulty and there is considerable irritation about the nipples when the child nurses, it is better for the mother not to attempt to feed the infant. During convalescence, cardiac stimuli are often necessary and the physician should be careful to ascertain that his patient is not anemic.

The prognosis in these cases depends upon the extent and severity of the heart lesion, the condition of the excretory and respiratory organs, the morale of the patient, and the question of prompt and skilful management. Surprisingly good results are obtained in the most unpromising cases if the physician can keep in mind the cardinal points in the management of these patients. At the risk of wearying the reader, we repeat that it is of prime importance that mental and physical distress be controlled and prevented. Nothing

brings on cardiac syncope so rapidly as the struggles of a woman in labor knowing that she has a serious heart condition and believing herself to be in imminent danger of death. Analgesics and anesthetics are of primary importance in the management of these cases. Second in importance is prompt delivery, with or without labor. The strain of labor is to be avoided. The judicious use of rest and heart tonics is also of value.

It is impossible to state accurately in figures the mortality of heart lesions complicating pregnancy and parturition. So much depends upon so many factors present in each case. Our study of the subject can be in no way complete unless consideration is given to the claims of the child. The mother may ask whether her child will be born with a congenital heart lesion. This question is often raised by patients suffering from ill health of any sort which is prolonged and serious during a pregnancy. In replying one must distinguish between congenital and acquired conditions. Whatever is congenital with the mother is much more apt to be transmitted to the child than a condition which is acquired. As few women having serious congenital conditions of the heart pass through pregnancy and parturition, it is very seldom that this can be directly transmitted. On the other hand it is transmitted, for otherwise we should not have to deal with cases of congenital disease of the heart complicating pregnancy. Acquired conditions, the result of previous disease, are obviously not transmitted. It must also be remembered that a patient having a serious cardiac condition during pregnancy must be deficient in general vigor and nutrition, and that her infant will be correspondingly lacking in development and in strength. One may say then that, on the whole, a serious cardiac condition in the mother predisposes to a lack of vigor and development in the child. This is one of the reasons why in attempting delivery no additional risk should be thrown upon the mother for the sake of the child.

Another factor which militates against the infant is found in the circumstance that if the mother's condition becomes critical during labor, haste may become imperative in her delivery. Outside of hospital, where abdominal section cannot well be undertaken, version is frequently practiced. If this be done hurriedly or unskilfully, the clavicle or humerus of the child is not infrequently broken during the delivery. Fortunately, these injuries do not endanger life and admit of prompt and complete recovery. Other more serious conditions for the child are found in prolapse of the cord, serious depression of the cranium, and inspiration of vaginal blood and mucus, followed by inspiration pneumonia. The mortality and morbidity of the child is increased certainly ten per cent by the presence of serious heart lesions in the mother.

In discussing the question of cardiac disease complicating pregnancy and labor, one must not forget that disease of the thyroid gland may induce abnormal conditions of the circulation, while not directly causing structural disease of the heart. The rapid pulse of exophthalmos and the abnormal circulation seen in goitre are examples of the condition. During pregnancy the administration of thyroid extract is indicated in many of these cases. They bear the strain of labor as poorly as do those patients having serious cardiac lesions. They require not only narcotics, but also those remedies which restore vasomotor tone and steady the circulation, such as strychnia, belladonna, digitalis, and opium. In skilful hands, anesthesia and delivery without labor are best adapted for these patients.

# Editorial

## THE EFFICIENCY OF DEEP INJECTIONS OF MERCURIAL PREPARATIONS IN SYPHILIS.

For many years intramuscular or deep subcutaneous injections of various mercurial preparations have been largely employed in the treatment of syphilis, and although the introduction of arsphenamine has to some extent diminished the employment of this plan of treatment, without doubt it is still deservedly popular because of the secrecy with which it can be carried out and also because of its efficiency in certain stages of the disease when mercury is recognized as being more valuable than arsphenamine.

The number of mercurial preparations which have been introduced for this purpose is very large, but experience has finally limited the number to a comparatively short list in which the preparations may be divided into the soluble and insoluble salts. Of the soluble salts, bichloride of mercury and the red iodide of mercury are the ones which are commonly referred to. The bichloride is of course precipitated in the tissues in the presence of albumin, but it is well known that this precipitation does not greatly delay the absorption of the drug, and aside from the discomfort of the injection there is no question of its efficiency.

The insoluble preparations that are most commonly employed are mercury salicylate, calomel, and gray oil, and during the last decade the first of these has continually increased in popularity while the other two have constantly lost ground. With all of them there is a constant danger of mild or severe mercurial poisoning, since their injection in different persons results in varying periods of absorption, and it would also seem probable that there is a marked difference in the rapidity of absorption according to the portion of the body into which the injection is made, it being absorbed from the gluteal region much more rapidly than from the broad of the back. Much depends, of course, upon the vehicle which is used to carry the mercury into the tissues. We believe that petrolatum should never be so employed, as it does not lend itself to absorption and may result in the development of small tumors, which are increased in size by fibrous tissue which is deposited around the injected material. It is much better to employ a suspension of one of the insoluble preparations of mercury in lanolin, or better still in goose grease, since the latter is more readily absorbed than lanolin, melts at a lower temperature, and for this reason is more easily manipulated when it comes to drawing the emulsion or suspension into the needle and syringe.

It goes without saying that the efficiency of any form of treatment depends upon the effective absorption of the medicinal agent, and to inject it with liquid petrolatum is practically to imprison it.

There are other points in connection with this matter which must not be forgotten. When mercurials are administered by the mouth, there is comparatively little danger of after-effect, because symptoms of mercurialism develop gradually in most cases and digestive disturbance or diarrhea helps the patient get rid of some of the drug before it gains access to the general system. When given by the needle, however, absorption is uncertain. If the part which receives the injection is subjected to massage, or if its circulation is increased by exercises whereby the mercury is more rapidly picked up, the drug may promptly produce some manifestations of its action. On the other hand there may be a distinct cumulative effect so that an outbreak of mercurialism suddenly develops and becomes severe even if the physician and the

patient have been watching for symptoms and have stopped further dosage. Although watching is a wise procedure, it nevertheless does not meet the exigencies of the case because the number of injections already given act as storehouses from which continued absorption is bound to occur. The very uncertainty as to the activity of absorption when the syphilitic manifestations are acute is also an argument which can be brought against the injection method of treatment.

Within the last few months, as some of our readers are aware, Cole, Littmann and Sollmann have attempted to investigate this matter by the use of the *x*-rays. In the case of the soluble preparations of mercury they got few results, because these failed to cast any shadow which the *x*-ray would reveal, which in a sense is evidence that such preparations are promptly absorbed. In the case of mercury salicylate, using from 1 to 1½ grains in the buttocks, they found that the shadow induced when this drug was dissolved in anhydrous lanolin disappeared in from three to ten days, and they believe that the average for most patients is about four days. When the injection was made in the lumbar muscles, they think that the average time of absorption is seven days, but the extremes vary from two to twenty-four days. In the case of calomel injected into the buttocks, the absorption occurred much more slowly, the average being fifteen days and the extremes from four to thirty-nine days.

When they came to employ gray oil, using doses from ⅛ to 1/6 Cc. of a 40-per-cent suspension, they found that the delay was even greater than in the case of calomel, the average being 43 days with extremes of 16 to 125 days, and they therefore urge that gray oil be dismissed from the list of drugs which are administered in this manner in the treatment of syphilis.

For reasons that we have already given, patients receiving any of the mercurials by means of the needle should be watched with even greater care than are those patients who are receiving mercurial treatment by the mouth, or by inunction. It is also evident, because of the discomfort and pain which deep injections often induce, that none of these preparations are to be resorted to unless peculiar conditions exist from the social standpoint, or because of the virulence of the disease, or the presence of some lesion involving vital function, so that all question of local discomfort becomes unimportant as compared with the main object which the physician has in view.

## THE TREATMENT OF ASCITES BY DRAINAGE.

Clinicians of large experience have undoubtedly met with an occasional case of ascites in which after repeated tappings a fluid fails to recur, probably because the collateral circulation has been established or as the result of inflammatory processes induced by the frequent performance of paracentesis. It has been the custom of some of us, when frequent tappings have been required, to use a large trocar, which when withdrawn leaves an opening of sufficient size to permit the patient to drain slowly into dressings, and under these circumstances it has not been our custom to abstract all the liquid during the operation, but to take away that amount which would relieve tension and let the rest of it escape gradually. In many instances this is not accomplished, because the opening becomes occluded, but this method is advantageous when slow drainage results, because it avoids the sudden relief of all pressure, which sudden relief probably predisposes to another outpouring of fluid.

In the *British Medical Journal,* O'Conor, in charge of the British Hospital at Buenos Aires, has reported two cases of ascites in which the measures used were somewhat similar to these, except that after he had drawn off a considerable amount of fluid he introduced a soft-rubber catheter

through the cannula and then withdraw the cannula, leaving the soft-rubber catheter *in situ*, making it fast externally by silkworm-gut suture extending from the tube to the adjacent skin.

The first case was one of hepatic cirrhosis, suffering much distress, and from which six liters were drawn off. He rapidly filled up again, and seven liters were drawn off. A week later he was tapped a third time, and six liters of fluid were taken away, and it was on this occasion that the soft-rubber catheter was used. The results were most advantageous in that not only did the patient rapidly become comfortable, but two months later returned to report himself as extraordinarily well, and a year later he remained in good condition.

In the other case the ascites arose from cardiac incompetence; the distention of the abdomen was enormous and associated with slight edema of the lower extremities. At the first tapping eight liters of fluid were removed; three weeks afterward six liters were removed, but only ten days later he came in in as bad a shape as before. The same method was employed in this case as in the first. The flow ceased on the sixth day and there was, as in the first case, a sudden increase in the daily quantity of urine. Two months later, having left the hospital without permission, he reported that he was hard at work, but a short time afterward the cardiac failure became intense and death ensued, but without a trace of the return of ascites.

## A POINT OR TWO IN REGARD TO APPENDICITIS.

We think there can be no question at the present time that as soon as the diagnosis of appendicitis is made, and every effort should be used to make it early, there is just one thing to do, provided a competent surgeon is obtainable, and that is to operate. It is, of course, true that a great many people not only pass through one attack of appendicitis with safety, but that many pass through multiple attacks. Nevertheless, the hope of recovery without operation is a very uncertain one, and quick subsidence of symptoms, instead of being a good sign, is, in the vast majority of instances, an evil sign, in that it indicates gangrene of the appendix. The difficulty in postponing operation is that even if the disease has been in existence but a few hours it is impossible to tell how near gangrene or perforation the appendix is, and if the operation is done immediately by some one who is competent to do it, it has a mortality which is almost nothing; whereas non-operative treatment has a high mortality. A surgical procedure therefore is undoubtedly the thing. Such surgical procedures should not be preceded by active medication in the way of purgatives: first, because the cecum is practically never filled with feces, and secondly, because an active purgative may hurry perforation. Furthermore, surgeons are coming more and more to the view that purgation within twenty-four hours of operation is, as a rule, disadvantageous, and many of them let the bowels be at rest, except for an enema, for forty-eight hours before surgical interference when such delay in other abdominal conditions is permissible.

There is, however, another class of cases of appendicitis in which there is some difference of opinion as to what should be done; namely, those in which the disease has progressed to such an extent that a more or less generalized peritonitis has been developed, in which case no less an authority than Ochsner (THERAPEUTIC GAZETTE, February, 1921) believes that the patient should be let alone from the surgical standpoint, should be put in an exaggerated Fowler's position, and should have saline by the Murphy drip method until the acute inflammatory process has had an opportunity to subside and nature has been able to throw out protective barriers, thereby limiting the progress of the disease. Similar views are expressed by Deaver in an article which appears in

the current issue of this journal. If death results in such cases the responsibility for it is to be placed upon the failure to operate early and not upon the method of treatment which is instituted, since the mortality when such cases are operated upon in the presence of a general peritonitis is greater than the mortality when the patient is put in the Fowler position and receives the Murphy drip.

We are well aware that some surgeons do not agree with this view, but Deaver and other prominent operators believe that it is a wise procedure, and that in this case withholding the knife is to be as much commended as is the early use of the knife in the first type of cases to which we have referred. In the latter type of case it may be said that in all probability there is no better method of treatment than that which was devised by Ochsner. (See February issue.)

## SOME ADDITIONAL MEASURES AGAINST DIPHTHERIA.

Within the last few months three interesting papers bearing on this subject have appeared—two of them by Geilen, Moss and Guthrie, in the *Johns Hopkins Hospital Bulletin*, and a third by Fraser and Duncan in the London *Lancet*.

The object of the first named investigators, as stated in their first communication, was to determine the effect of diphtheria antitoxin in preventing lodgment and growth of diphtheria bacilli in the nasal passages of animals. As a result of their work they conclude that the subcutaneous administration of antitoxin does not prevent the lodgment and growth of this pathogenic organism in the nasal passages of cats, guinea-pigs, and rabbits. While it is recognized that the conditions in these animals may not be identical with those which exist in children, nevertheless the results which they obtained are of interest and importance as indicating that while antitoxin is of immense value when the disease has once developed, it does not seem to be a factor which we can employ in the treatment of so-called "carriers."

In their second paper they studied in children the following points: namely, the persistence of the bacillus in the throats of persons having positive cultures but not suffering from clinical diphtheria, the virulence or non-virulence of the diphtheria bacillus in the throats of such persons and whether such bacilli may undergo a change in virulence, or, in other words, whether they may become avirulent on the one hand or, if they are avirulent primarily, acquire virulence while growing in the throat of the carrier.

They also made investigations as to whether any of the carriers examined had at any previous time had clinical diphtheria or had been exposed to the disease. The number of children examined was over 800; 426 being males and 374 females. In February they found that the diphtheria bacillus was present in 85 cases, or 10.62 per cent. Three months later they got 69 positive cultures or 8.62 per cent. The incidence of positive cultures was practically the same among males and females in the different age and sex groups.

The paper which they have contributed is a most exhaustive one, with many tables, and they conclude that the diphtheria bacilli present in the majority of healthy carriers belong to the avirulent type, a type which cannot produce diphtheria. Furthermore, they have been unable to adduce any proof that avirulent diphtheria bacilli can acquire virulence, or to express it differently, carriers of such bacilli do not constitute a menace, and interference with the liberties of these persons on the ground of their being carriers is unwarranted and not justifiable. While fully appreciating the fact that the guinea-pig test may be taken as a safe index of virulence or non-virulence, they recognize the loss of time and expense entailed in the application of this test, but believe that it is far less difficult to carry out than the quarantining of all persons whether they are carriers of avirulent or virulent germs.

They also express the interesting opinion that while the carrier of virulent bacilli occupies a very different position from that of the carrier of the avirulent type, nevertheless the danger from the former has been overestimated. These results, of course, in no way justify the cancellation of rules already in existence in regard to quarantine, nor do they negative the necessity of applying measures which may change a carrier of virulent organisms into a safe person.

The third paper to which we refer, namely, that by Fraser and Duncan, discusses the treatment of diphtheria carriers with detoxicated Klebs-Loeffler vaccine. As a result of their work they believe that by the use of such a vaccine we have a method of promising efficiency in dealing with contacts, convalescents, and carriers. They point out that antitoxin protects only from the toxin produced by the living diphtheria organism, but assert that the vaccine prevents the growth and life of the organism, and, therefore, they urge that in case of diphtheria both vaccine and antitoxin should be given. They claim that such a combination will produce a good effect and that there is usually no trace of a chill or local reaction.

The dose of detoxicated diphtheria vaccine employed by them varied over wide bounds. Thus a girl, aged twelve, who was held responsible for three consecutive outbreaks, was treated by the subcutaneous injection of doses which began with 100 million, and were increased gradually during a period of two months until they rose to 3200 million. In the case of a soldier twenty-six years of age, the doses began with 4 million and increased to 350 million; the vaccine being supplied from the laboratory (to use the words of the reporters) in the strength of 2000, 20,000, and eventually 100,000 millions per Cc.

So far as we know this combined method of treatment by vaccine and serum has not as yet been arranged for so that the general practitioner can obtain both products on the market, but we have called attention to these researches because they seem to point to additional means by which the great problem of "carriers" can be attacked. The problem of protection by the use of toxin-antitoxin, and cure by the employment of antitoxin alone, has been already universally accepted as settled.

## DIGITALIS AND DIPHTHERIA.

Although it is true that pharmacological investigations carried out upon animals and men when in health are of infinite value and have done much to place our treatment of disease upon a firm foundation in distinction from the empiricism which was required of our forefathers, it is also true that very little work has been done in regard to determining the exact physiological activity of most potent drugs in the presence of acute illness due to infections or as to their influence upon various organs of the body during convalescence. Indeed, it would begin to appear that in not a few instances during the course of pneumonia, typhoid fever, and diphtheria, some remedies while theoretically indicated are practically not only useless but actually harmful.

The ease with which the electrocardiograph can be used in cases of illness opens up a field which we hope will soon be tilled, and we believe that it is possible by this means to determine in each patient when what might be called a massive dose of a certain drug, as digitalis, is needed, whereas in another case of circulatory failure it would be found to be absolutely contraindicated.

In line with this thought attention may be called to a communication made not long since by McCulloch, who has studied the question of the use of digitalis in post-diphtheric cardiac disorders. He used the electrocardiograph and showed that the diphtheria poison exercised a very definite influence over the conduction of contraction waves in the heart, in some instances producing either a block of one branch of

His' bundle or complete heart block. As is well known, massive doses of digitalis are capable of producing just this condition even in a healthy heart, and therefore the physician who thinks of digitalis solely as a circulatory stimulant, without carefully considering our increased knowledge concerning the physiology of the heart muscle and the influence of digitalis upon it, may, unwittingly it is true, produce grave disaster even by the comparatively moderate use of this powerful drug, which like all powerful drugs is capable of doing so much good when properly used and so much harm if abused.

## THE ORTHOPEDIC SURGEON.

The tendency of the time is toward specialism.

The benefits accruing from specialism, not only from the standpoint of the patient, but from that of a greater knowledge and keener interpretation of symptoms, and a refined and more efficient technique, are well recognized, hence the popularity of consultations. The dentist is a shining example of the specialist, who in part, because of his application to a limited field, has acquired a manual dexterity, supplemented by mechanical helps, to an extent little realized by the general surgeon. The ophthalmologist in his special line of research has far outstripped both the practitioner of medicine and the surgeon. His contributions to each of these men, both from the diagnostic and prognostic standpoint, have been of incalculable value. The neuro-surgeon has not been without his value, especially when his work has been supplemented by the knowledge and his hand has been directed by the diagnostic acumen of the neurologist.

Particularly during the war, and led by Jones and Goldthwait, the orthopedist has been clamant for an enlarged field and a wider recognition. In this relation Jones's contribution to the *British Medical Journal* of November 20, 1920, is of particular value. He states that in the past a very superficial surgical knowledge was required by the orthopedic surgeon. Lateral curvature, flat-feet, knock-knees, and certain congenital deformities mainly sufficed to represent the specialty. A few tenotomies and an occasional osteotomy were all the operations that were practiced. An operative technique was not imperative, and the use of the knife was a last resort and generally represented the failure of mechanical effort.

Such a narrow definition of orthopedic surgery as sufficed then cannot be allowed to obtain to-day, and for this reason we should agree as to the limits of its expansion. Jones ventures to suggest the group of cases which a modern orthopedic surgeon should be prepared to treat. They should consist of:

Fractures—recent, malunited, and ununited.

Congenital and acquired deformities of the extremities.

Paralyses of the extremities.

Diseases, derangements, and disabilities of the joints, including the spine, wry-neck, and those conditions included under the general term "bone-setting."

This definition covers a very large area of surgery, and therefore will appeal to the ambition of the best type of young surgeon. An orthopedic surgeon must primarily have a thorough working knowledge of general surgery, and all through his life he must be cognizant of its advances.

Function is his goal, and he should know and be able to practice the best way of arriving there. He must have a sense of perspective and of proportion. An operation means to him but the beginning of his problem. His most brilliant operative exploit, unless directed to a functional success, should be a reproach. This can only be achieved by acquiring, in addition to mechanical knowledge, an operative skill of the highest kind.

The surgeon may very properly urge that if so large a group of cases were taken from his wards much valuable teaching

material would be lost to him. The answer to this is that the general surgeon should have an absolute right to treat any case and as many of any type of cases as he desires. The orthopedic surgeon is alone to be limited as to type. He should only be allowed to treat cases which are included in the definition. The general surgeon should not be limited by any definition of any sort. Under such an understanding there would be no resentment and no reservation. Take fractures as an example. The treatment carried on in the orthopedic ward would be contrasted in friendly rivalry with that of the surgeon who takes such cases into the general ward. If the orthopedic surgeon falls short of expectation, the rivalry will be to his disadvantage. Truth never shows better than when contrasted with error, and in the nature of events fractures will be absent from such an orthopedic ward. If he should succeed, the reverse condition will occur, and the general surgeon will be only too delighted to be rid of a case in the treatment of which he does not excel. In any case the rivalry will benefit them both—and, incidentally, the patient.

A great defect in our large general hospitals is the system whereby a surgeon is expected to treat equally well cases in regard to which he is an acknowledged master, and cases which do not interest him in the least. There is an urgent call to remedy this dangerous defect. Once a surgeon is convinced by demonstration of his inability to give the best to a patient, he would no longer care to invite comparison. A surgeon of international reputation on the brain is only too pleased to hand over a case of hemorrhoids and accept a tumor of the pituitary. A well-organized orthopedic department should prove a pleasant dumping ground to many a skilful and conscientious surgeon.

Orthopedic surgeons should convince hospital authorities of the urgent necessity of open-air annexes for the active treatment of crippled childen.

It will be agreed that the student is more receptive of orthopedic training toward the end of his curriculum than earlier. The essential point, however, is that his attendance should be compulsory for a certain number of sessions. It should be possible that on one day a week the orthopedic department be prepared to lay itself out for systematic instruction, and the student should be obliged to attend upon at least twenty occasions. During that period every variety of case should be demonstrated, and opportunities should be afforded him to do practical work. More especially should he be taught the principles that underlie the prevention of deformities and their correction. At this clinic the instruction should be of the simplest kind, and the student should not be burdened by material of a controversial character. He should not leave this clinic until he has mastered the simpler and most efficient methods of treating fractures. He should also be made familiar with the uses of plaster of Paris. This course of education should be carefully planned, and week-end visits should be made to the country hospital.

Postgraduate teaching has hitherto been unsatisfactory. Practitioners have come for, at most, a month or six weeks, and the arrangements, on the side of both teacher and student, have been of a most casual kind. The glamor of the operating theater has overshadowed the out-patient department, from which the bulk of his training should come.

Systematic instruction should be offered the postgraduate, and should consist of short courses for the practitioner who merely wants to be familiar with modern methods. Even this tuition should be carefully planned so that the education may prove intensive. The postgraduate who can only spare three months should be encouraged, for he is the type of man who feels the responsibility of not being competent. The postgraduate school should, however, be prepared with higher courses of training as applied to men who wish to become thoroughly efficient orthopedic surgeons.

These courses should extend some over one and others over two years, and graduates should be given every opportunity to familiarize themselves by practice both with mechanical and operative technique. At the end of the first year, if the work of the graduate has been satisfactory, he should be granted a diploma in orthopedic surgery, and if he elects to train a second year he may take his university degree in the same subject. The higher courses should offer the advantages of the anatomical, the physiological, and the pathological departments, and for a degree original research work should be essential.

These suggestions are so entirely rational, and their application is so essential to the proper handling of many cases which because of lack of knowledge upon the part of practitioners of both medicine and surgery have remained permanently crippled, that there is little doubt but that they will be put into effect; it is to be hoped promptly.

A major difficulty is incident to the circumstance that the number of men thoroughly trained in the treatment of affections which Jones classes as orthopedic is comparatively few, and to the further fact that the men who are not so trained recognize neither the need of such training nor the inadequacy of their present results.

## VENEREAL DISEASE PROPHYLAXIS.

The unofficial National Birth Rate Commission has appointed a special committee to inquire into certain aspects of venereal disease, says the *British Medical Journal* of November 20, 1920. The terms of reference are to consider the following questions:

1. Whether sexual continence before marriage is consistent with normal health.

2. Whether self-disinfection as a method of preventing the development of venereal disease in persons who have exposed themselves to the risk of infection is more efficient or less efficient than medical treatment at venereal clinics and early treatment centers.

3. The possible advantages and disadvantages of various suggested methods of self-disinfection, (*a*) before, (*b*) after sexual intercourse.

4. Whether methods of self-disinfection involve any serious disadvantages of a moral kind—that is to say, whether they are calculated to weaken moral control, and thereby to lead to an increase in promiscuous sexual intercourse; and if so, to what extent these disadvantages should render the use and advocacy of self-disinfection undesirable when considered from the point of view of ultimate national welfare.

There has been a strong feeling not only in England, but in this country, to the effect that the so-called venereal prophylaxis—*i.e.*, the application of washes and antiseptics to a person immediately after exposure and before the development of symptoms—is an encouragement to immorality and therefore should not be countenanced. Such has not been found to be the case. Moreover a person who has had a sexual contact without the law should be looked upon in the same light as a diphtheria contact. In place of waiting for the possible development of disease, he should at once be given, or take, a treatment which gives a reasonable assurance against infection in his or her person. This policy is supported by the Pennsylvania Department of Health, and if it proves efficacious will undoubtedly become a world-wide policy in a comparatively brief time.

# Progress in Therapeutics

## Medical Therapeutics

### Gastric Dilatation in Pneumonia in Children.

KERR, in the *New York State Journal of Medicine* for November, 1920, states that the objective findings in this condition are characteristic. Inspection often reveals a visible and palpable tumor in the upper abdomen, although not always in the normal stomach position because the organ may be displaced. Immediately after vomiting this may be reduced. While the whole abdomen may be enlarged and tympanitic, the upper portion is more prominently so. If the distention is great or the abdomnal walls thick, the stomach may not be readily outlined. Percussion findings will depend upon whether the contents of the stomach are gaseous or fluid.

Usually after a few hours the pinched features and the objective evidence of circulatory shock are marked. The pneumonia continues its usual course for several days, when rather suddenly the symptoms just described become more or less prominent, causing much anxiety to all concerned. Or they may become immediately alarming, with all methods of treatment and medication proving of no avail. And the child dies. From discussion with a large number of fellow-workers, he knows that the symptoms caused by acute gastric dilatation are not laid to that condition, but are supposed to be due to cardiac failure, dilatation not having been suspected. This explains in part the failure of cardiac stimulants: they are misapplied. Perhaps the recital of a recent case will better illustrate this.

While attending a clinical meeting it was reported to him that one of the children in the pneumonia ward was dying. This was at 8:30, and his examination revealed that the respiration had quite suddenly risen from 61 to 90 per minute, although the temperature remained stationary. The child was markedly cyanotic and uncontrollably restless. There had been one sharp attack of vomiting earlier. The whole abdomen was enlarged, but more so in its upper portion. The stomach was immediately washed out and orders left that nothing be allowed by the mouth for at least twelve hours. No medication was given, although it is his usual practice to administer a small amount of morphine by hypodermic. He wished to impress the interne with what could be accomplished by lavage alone to meet what he termed "cardiac failure." Immediately following the lavage the child became quiet, fell asleep in ten minutes, and one hour later when the respirations were taken, they were down to 41. When he saw the child again at 11 (two and a half hours after the examination which revealed the acute dilatation) the child was still asleep, quiet, and without the slightest evidence of cyanosis.

No doubt the lavage by its prompt removal of material which could not be acted upon because of the loss of motility of the stomach helps to reduce the shock. He is convinced that if the lavage had not been done or its performance had been delayed for a few hours this child would have died and the death would have been attributed to cardiac failure.

Treatment must be prompt and adapted to the immediate condition of the stomach. If percussion reveals much fluid the foot of the bed should be elevated from 12 to 18 inches and the left anterolateral abdominal position assumed. The head may overhang the edge of the bed and the left arm be allowed to hang or rest upon a chair, while the back is supported by pillows from neck to heels.

The next essential is efficient lavage.

Efficient lavage means first the complete

emptying of the stomach, and this may give the needed relief. If not we must be prepared to follow it up with continuous lavage. This is accomplished by inserting a small tube through the mouth or nares, securing it by adhesive to the cheek. This avoids the repeated introduction of the larger tube.

The next essential is the absolute withholding of everything by mouth for at least twelve hours and often longer. Water, medicine, everything must be absolutely stopped. To limit or prevent a starvation acidosis, it is permissible to administer by proctoclysis a solution of bicarbonate of soda with glucose. For acute dilatation, firm pressure is made for several seconds across the spine in the interspaces between the third and fifth thoracic vertebra. This causes an explosive eructation of gases.

Another procedure which may be desirable, but not absolutely essential, is the administration by hypodermic of small doses of morphine. He has not used eserine or atropine, although they may be of service.

In lobar pneumonia in children we have a definite mortality factor whose importance cannot be appreciated unless the possibility of its occurrence is recognized. He feels now that it is just as important to provide the simple apparatus for lavage as to carry the stethoscope. His examinations are now more directed to the abdomen than the chest; inspection and palpation of the former are much more frequently done than percussion and auscultation of the latter. As this serious accident is more apt to occur just before or at the time of the expected crisis, the occurrence of cyanosis, restlessness, and exhaustion should result in an immediate and complete examination of the abdomen. If this is done he has no doubt that the rarity of cardiac crises will be appreciated; that the symptoms commonly attributed to the heart will find their explanation in acute gastric dilatation; that the failure of all stimulants at the time will be explained, and with the prompt application of the adequate measures to efficiently meet the emergency, some of the children will be spared.

**Tobacco Smoke as a Mouth Disinfectant.**

Writing editorially on this subject, the *Lancet* of October 30, 1920, says it must be admitted that it would be of great practical interest to ascertain definitely what action tobacco smoke may have on the microörganisms of the mouth. During the recent influenza epidemics every medical practitioner must have been repeatedly asked by his patients whether tobacco smoke can kill the influenza microbe. Several disquisitions exist in medical literature with the object of solving this problem, but all of them fail in not having made any practical experiments on the subject, so that it still remains undecided whether the marked bactericidal power of tobacco, as shown *in vitro* upon many microörganisms, is also manifested in the oral cavity and even, as some have alleged, in the lungs after inhalation and in the intestine following on deglutition.

Puntoni, of the University of Rome, has undertaken some experiments with the object of ascertaining the real action of tobacco smoke as a disinfectant under conditions similar to those which exist in the oral cavity. The results of these experiments are interesting. In the first place it was found that the strikingly disinfectant power that tobacco smoke exercised *in vitro* did not occur to the same extent in the mouth of the smoker, and the most that could be said was that a bactericidal action was only shown to follow the consumption of very large quantities of tobacco, and then only on the microörganisms of least resistance, such as the meningococcus and cholera vibrio. It is not admissible that microbes having the resistance of B. typhosus or greater can be killed in the mouth by tobacco smoke, and it is absurd to think that the bactericidal action of the smoke could manifest itself in the respiratory tract as a sequel to inhalation.

The different qualities of tobacco made use of in these experiments showed a disinfecting power almost equal in relation to the weight of tobacco used; denicotinized cigars acted just as powerfully as ordinary

ones. The smoke of tobacco completely decolorized by filtration through compressed cotton-wool retained a marked bactericidal action, notwithstanding the loss of all the nicotine and tar products, which are the two elements possessing definite disinfecting power. The bactericidal substances contained in this decolorized smoke are soluble in water, one of them being capable of distillation at 100° C. and identical with formaldehyde; the other not capable of distillation was pyrrol, the bactericidal action of which as a component of tobacco smoke, and hitherto unknown, is important. The disinfectant action of tobacco smoke is, however, due to the activity of many elements, among which may be enumerated with certainty tar products, nicotine, formaldehyde, and pyrrol.

It may be recalled that, as shown in its own investigations of the subject (*Lancet*, April 6, 1912), the main constituents of tobacco smoke are found to be basic in character, and germicides, generally speaking, are of the acidic type—*e.g.*, salicylic acid, benzoic acid, boric acid, carbolic acid, hypochlorous acid, and so forth. Whether this differentiation has any significance is not clear, but the experiments recorded remind one of the tradition that during great cholera epidemics those who smoked clay pipes proved immune from the disease, though surrounded by numerous cases.

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### Effect of Carminative Volatile Oils on the Muscular Movements of the Intestine.

In the *Journal of Pharmacology and Experimental Therapeutics* for November, 1920, PLANT states that the volatile oils are widely used as carminatives, but the manner in which they produce carminative effects is not well understood. If one consults the various text-books on pharmacology it is evident that a difference in opinion exists as to what type of change the volatile oils in therapeutic doses produce in the muscular movements of the alimentary canal. Thus, some authors say that the volatile oils produce relaxation of the gastric and intestinal musculature and must therefore allow escape or onward progression of gases or contents passively. Others convey the opposite impression and state positively, or as probable, that carminatives increase the muscular movements of the alimentary canal. Muirhead and Gerald found that dilute solutions of volatile oils, *e.g.*, 1:50,000, produced increase in tone and in the amplitude of the rhythmic contractions in isolated pieces of intestine immersed in suitable oxygenated solutions, while stronger solutions, *e.g.*, 1:5000, caused relaxation. Some of the volatile oils they used belong to the carminative group, others do not.

The volatile oils when used as carminatives are mild remedies and must exert their primary effect on the mucous membranes of the alimentary canal; ordinarily the dosage is small and the concentration of the drug as it is applied is relatively low. It seems quite probable that their effects might easily be obscured by experimental conditions; that the results of their application to isolated pieces of intestine where they reach all surfaces in equal concentration, as in Muirhead and Gerald's experiments, or when their action is tested in intact animals where other disturbing factors are present such as anesthesia and operative procedures, may fail to give a true picture of what happens when they are applied to mucous membranes in dilute solution.

These considerations made it seem worth while to investigate the effects of volatile oils on the intestinal movements in experiments where no anesthetic was used, where no operative procedures were necessary at the time of the experiment, and where they could be applied to the mucous membrane in concentrations comparable with those employed therapeutically.

He then summarizes his article as follows:

1. Carminative volatile oils increase the muscular movements in the intestine when applied to the mucous membrane in dilute solution in unanesthetized dogs.

2. This increased activity involves an

augmentation of tone and of rhythmic contractions, and, at least during the increase in tone, progressing contraction rings (peristalsis) occur.

3. Occasionally the primary increase in muscular activity is followed by a decrease in tone and in amplitude of the rhythmic contractions.

4. These effects of the volatile oils are lessened but not abolished by atropine. They are abolished when the sensory endings of the mucosa are paralyzed by cocaine.

5. When the muscular activities of the intestine are markedly increased by the injection of small doses of morphine in dogs, the same kind of effect is produced by the volatile oils as before the morphine was injected.

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### Preservation of Lemon Juice.

BASSETT-SMITH, in the *Lancet of* November 13, 1920, states as a result of a number of experiments that concentrated lemon juice will keep well in concentrated juice or tablet form.

Boiling the lemon juice for five minutes does not appreciably diminish the antiscorbutic property.

Heating for three-quarters of an hour at 58° C. diminishes it to a more marked degree. The equivalent of 2.2 Cc. in one animal gave complete protection; 4.4 Cc. completely protected three out of four.

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### The Relation of Food to Infantile Eczema.

O'KEEFE, in the *Boston Medical and Surgical Journal* of November 11, 1920, states that sensitization in the exclusively breast-fed infant is an interesting feature. Some infants were found sensitized to proteins which they had no history of ever having ingested. One such nursling was sensitized to cow's milk casein. The eczema improved when the milk in the maternal diet was cut down to a pint a day. It was found then that to make up for this diminution in milk in her own diet, the woman had been taking cheese and cream. These were omitted from the maternal diet, and the child's skin cleared completely in two weeks. This child, five months later, showed a relapse of the eczema when the mother commenced to wean him and use cow's milk in his diet. At this time he showed a negative reaction to casein. Without knowledge of his history it would have been difficult to have determined the cause of his relapse.

Another child whose mother gave a history of eating large amounts of oatmeal showed sensitization to oat and egg proteins. The mother was intelligent and was positive the child had never been given either egg or oat in any form. The mother showed no evidence of sensitization to egg or oat and gave a negative test to both these substances. Elimination of these two articles of food did not result in improvement during the month that this case was under observation. The mother then failed to return. It was learned that the eczema had persisted.

Another nursling of six weeks gave a positive reaction to codfish. The mother's diet was said to contain a large amount of fish. This child's skin cleared up when the cod was omitted from the maternal diet.

Three other exclusively breast-fed infants showed positive reactions; two to egg and one to lactalbumin. One of the two showing a reaction to egg did not clear up until weaned at the age of one year. The other showed steady improvement when the egg was omitted from the mother's diet, and at the end of six weeks was free from eczema. In the nursling sensitized to casein, reduction of the milk in the maternal diet effected some improvement in a month, and at the end of another month cleared up entirely and has remained so for over six months, during which time the mother has limited the milk in her diet.

Such findings suggest that foreign proteins may pass from the mother in her breast milk in sufficient amounts to result in sensitization of the infant. A biologic investigation of breast milk might throw light on this point.

Seven cases of this series showed an excess of fat in the stools. Reduction of the fat to within the individual tolerance resulted in each instance in great improvement in the skin condition. Five of these cases were sensitized to casein, one to egg; one showed no cutaneous response to any of the proteins used. In each case a relapse occurred when the fat was again increased beyond the child's tolerance as shown by stool examination. The improvement following a reduction in the fat occurred without any change in the amount of protein in the diet other than that incident to the cream reduction. In these cases the fat was the predisposing factor rather than the causative factor of the eczema. An excess of fat interfered with the digestive processes or with the integrity of the intestinal walls sufficiently to permit undigested protein molecules to enter the circulation. There is no doubt that unsuitable forms or amounts of carbohydrate in the child's diet act in a like fashion to pave the way for protein inroads.

The 41 per cent of positive reactions occurring in this series of eczemas is in striking contrast to the percentage occurring among normal children, in whom Baker reports the incidence of protein sensitization to be an almost negligible factor.

In considering the results of treatment it is difficult to gauge the part played by external therapy. It is always a great comfort to the patient. In some cases, moreover, it seems to be alone sufficient to effect a cure. Theoretically it cannot be considered more than a palliative measure if we are to believe that the disease is a result of food poisoning. O'Keefe would not care to be deprived of the aid of the dermatologist either in the diagnosis or treatment of the disease.

As an aid to regulation of diet the protein skin tests give information which can be obtained in no other way. These tests do not supplant the older methods of determining what does and what does not agree with a particular infant, but they do supplement such methods. All persistent cases of eczema should have the benefit of whatever knowledge can be gained of their particular idiosyncrasies by this method. It should not be to the exclusion of a careful dietary history and a complete physical examination with especial attention to the stools. All these data are important, because they enable intelligent management of the child's diet.

The intimate relation shown to exist between food and eczema in so large a percentage of these cases justifies the conclusion that dietary regulation is essential in the treatment of this condition.

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**Results of Three Years' Treatment of Syphilitic Mothers and Babies.**

ADAMS, in the *Lancet* of November 13, 1920, reminds us that two years ago he read a paper before the Obstetrical Section of the Royal Society of Medicine on the Treatment of Ante-natal and Post-natal Syphilis. At that time he was only able to give the results of one year's treatment, and a wish was then expressed that he would report the progress of these cases at some future date. He now publishes a table giving the full results of all cases treated during the past three years at the Thavies Inn Venereal Centre for pregnant women as far as it has been possible to follow them up. He quotes as follows from his former paper:

"I am aware that one year is too short a period in which to bring the treatment of ante-natal and post-natal syphilis to perfection, and that the treatment adopted to-day will be improved to-morrow."

This statement has been fully confirmed during the past two years. He has been able to follow up most of the cases and to show (last November) to the Fellows of the Hunterian Society many of the babies up to two years old, all of whom appeared perfectly healthy and showed a negative Wassermann test. On one occasion only a baby showed a doubtful positive Wassermann reaction after once becoming negative.

In each year the percentage of babies born with a negative Wassermann reaction has increased, as shown by the statistics which he has given. He attributes this result to the more active treatment the mothers receive before confinement, and the more general use of arsphenamine in pregnant syphilitic women than formerly. He looks forward with the greatest confidence in the future to see the wastage of infant life from syphilis almost come to a vanishing point. At present it is doubtful if any disease, even tuberculosis, is so destructive to child life or so disastrous to child health as syphilis. Most of the mothers enter Thavies Inn at about the sixth month of pregnancy, having been sent there on a diagnosis of syphilis, made either on clinical evidence or on the Wassermann test. Some have been treated with mercury and arsenic, and in consequence have no obvious lesions; others have had no treatment whatever. Practically all are in the secondary stage of the disease.

The results of treatment are most encouraging, though, of course, they vary with the period before confinement at which it is begun. In the last two years there has been only one stillbirth and no deaths from syphilis among the cases treated. His experience has been that if the mother's Wassermann test can be brought to negative or doubtful at her confinement the baby will be born negative and show no sign of syphilis. If the mother is positive or strongly positive the baby will probably be positive too, in which case, of course, vigorous antisyphilitic treatment is begun at once. However, in a case at present under his care, in which a definite history was obtainable that infection took place about seven months after conception and no treatment was given before confinement, the baby was born negative, although at the time the mother had generalized syphilis, as shown by a strongly positive Wassermann reaction. Cases of this kind open up questions as to the cause of the baby's immunity.

None of the babies born negative have since become positive, nor developed any signs of syphilis, though many have not had any treatment beyond the drugs they absorb through their mother's milk.

To summarize, he says that a pregnant woman with syphilis, whether active or latent, if treated for three or four months before her confinement, will probably be delivered of a healthy child at full term.

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### The Action of Adrenalin on the Heart.

HEINEKAMP, in the *Journal of Pharmacology and Experimental Therapeutics* for November, 1920, sends us these conclusions as a result of studies on dogs:

1. Chloroform is toxic for heart muscle, producing or tending to produce weakening of the organ.

2. Inhibition under chloroform anesthesia after adrenalin is due primarily to the toxic or paralytic dilatation of the heart, ventricular fibrillation supervening on this condition.

3. Because of the action of chloroform on the heart adrenalin is contraindicated wherever chloroform is employed, and chloroform wherever adrenalin is used.

4. The blood-pressure has no definite reflex relation to the production of the condition of paralytic dilatation, but has a most important direct action by preventing the ventricle from emptying itself.

5. The adrenalin action is peripheral since it occurs after section of the vagi.

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### The Pharmacology of Chelidonin, a Neglected Alkaloid of Chelidonium, or Tetterwort.

HANZLIK, in the *Journal of the American Medical Association* of November 13, 1920, in summarizing his article says:

1. Attention is called to the activity and usefulness of chelidonin, a neglected alkaloid, obtained from tetterwort or celandine, which was formerly official in the U. S. Pharmacopœia.

2. The actions of chelidonin resemble those of papaverine and the benzyl esters, but differ from morphine in several particulars. It possesses a relatively low toxicity.

3. Chelidonin causes depression and narcosis without subsequent excitation of the central nervous system, differing in this respect from morphine. It slows the pulse and lowers the blood-pressure, owing to cardiac depression, relaxes smooth muscle in all regions, and depresses skeletal muscle without influencing the nervous connections.

4. Therapeutically, chelidonin is indicated in hypertonus, angina pectoris, bronchial asthma, intestinal, ureteral and uterine colic, or spasm of smooth muscle anywhere.

5. Being obtained from a weed growing extensively in the United States, and which can also be easily cultivated, chelidonin offers a distinct economic advantage over papaverine, which at present is virtually unobtainable. It is also more palatable than the benzyl esters.

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### An Analysis of the End Results of Treated Chronic Septic Myositis, Neuritis, and Arthritis.

JONES, in *Northwest Medicine* for November, 1920, states that in the treatment of all his cases the principles have been divided into, first, the radical removal of all foci of infection, and second, the subsidiary measures. Some of his complete failures have been associated with the refusal on the part of the patient to permit the removal of some or all of such foci. It is, of course, problematical what influence this has had in these failures.

The statement made by Lilly and Lyons in their statistical report of 200 cases of arthitis and myositis, that improvement is assured in 79 per cent of all by tonsillectomy alone, may hold in the myositis group, but he does not expect it to hold true in arthritis cases. Many of his results came only after carrying out the subsidiary measures of treatment over a long time. The greatest criticism of Lilly and Lyons' report is the time factor of one year. Many arthritis cases are known to relapse severely after periods of one, two, or more years. Pemberton reports that in his series of 400 cases, 184, or 46 per cent, recovered in the presence of demonstrable surgical foci; but here again the time factor is too short, it being but nine months.

The subsidiary measures of treatment which he has employed in his cases to a greater or less degree are: (1) Mechanical and hydrotherapeutic, (2) autogenous vaccines, (3) stock vaccines, (4) foreign proteins, (5) radium, (6) dietetic, and (7) climatic.

Massage, baking, etc., were used more or less in most of the patients. Autogenous vaccines gave rather uniformly better results than did stock vaccines. With a number of patients suffering from a severe grade of arthritis, in whom more or less progressive results were being obtained, resort to a stock vaccine had to be made by reason of exhausting the original supply, and uniformly less good results were noted from its use. This stock vaccine was prepared by combining eight or ten strains from the arthritis cases then being studied and known to produce specific lesions in animals. It was also noted many times that subculturing destroyed whatever specificity the organism may have had originally for the individual patient. These things recurring as they did made him believe that there was probably more than a non-specific protein reaction to the autogenous vaccine, and he finally prevented the above mentioned possible happenings by preparing a large amount of vaccine at once from the original animal cultures. All in all he thinks he obtained better results from the autogenous vaccines than he did from all the other measures combined, although that is difficult to say, because most of these patients had some of the other measures applied alternatingly or at the same time.

Typhoid proteins were used with much less benefit than the vaccines. They were started in small does—5 or 10 million—according to the physical state of the patient, the presence of marked asthenia, anemia, etc., and no doses larger than 60 million were given. He cites one case which was a most instructive study, in that it showed clearly that the use of a typhoid protein is not free from danger. The patient, a gaunt-built man of twenty-nine

years, had been profoundly sick and crippled with a progressing deforming arthritis for eleven months. Tonsil cultures gave a pure culture of a non-hemolytic streptococcus which was negative to animals. The severe dental sepsis gave in pure culture a hemolytic streptococcus viridans which produced in several rabbits lesions of the peritoneum, pleuræ, lungs, and lymph glands, from which the organism was again obtained. No lesions of the joints or muscles were produced. While awaiting the making of a vaccine, the patient was given three injections of 5, 10 and 15 million typhoid protein, respectively, at intervals of five and seven days. During the period of the last reaction he developed a confluent bronchopneumonia, from which he died. Autopsy gave a hemolytic streptococcus viridans from the lungs, pleuræ, and peritoneal fluid. The patient also had scattered syphilitic lesions of the heart, aorta, liver, and pia-arachnoid. Blood Wassermanns had been negative during life. In the few syphilitic and alcoholic arthritic patients treated he obtained no results.

Radium was used intravenously in a few cases. In two it afforded the most relief of anything employed, but by no means anything like complete relief. The metabolic work of Pemberton was not carried out with any of the patients of this series. He has two arthritics now under observation, and is watching these with much interest. One is a very severe multiple deforming case, upon whom much work has been done during the past few years without any results, and the other is a well-nourished woman with a moderate grade of inflammation limited to the right knee, who was free from pain and swelling for a week or two after tonsillectomy and then relapsed as badly as ever. (A foot-note states that these two patients later showed no effect upon their arthritis from low protein diets.) The arthritic conditions in several general asthenic patients were notably benefited by forced feeding and the general reconstructive principles underlying such work. One patient in the series received her final relief from a short residence near the Imperial Valley in Southern California. She has had three insignificant relapses since coming home three years ago, but is practically well.

He returns, then, in conclusion to the question mentioned above, as to whether this detailed, time-consuming, and often expensive work is worth while from the patient's standpoint. In the myositis-neuritis group there can be no debate, as the smaller cultured series gave much relief in 100 per cent and the larger non-cultured series in 78 per cent. Many factors enter into the same question as regards the arthritic group. Many arthritic patients receive temporary relief with no treatment, many are hopelessly incurable in the face of the most painstaking treatment, and seemingly there is no chance to study such patients in control series. In view, however, of the experimental evidence in favor of a specific etiologic relationship between some strains of streptococci and the joint lesions of chronic septic rheumatism, and because he was able seemingly to obtain by these methods of treatment reasonably good results in 48 per cent of the cultured series and 64 per cent in the non-cultured series, he personally has learned to believe in these principles. He believes firmly in the radical removal of all suspicious surgical foci, and he entertains no regrets in these cases when a suspicious focus is found to be innocent after its removal.

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### Tuberculosis and its Relation to Industrial Medicine.

In the *Pennsylvania Medical Journal* for November, 1920, TAYLOR states that from an industrial standpoint the question, What shall we do with the incipient, the early favorable, the moderately advanced, and the advanced cases of pulmonary tuberculosis? presents itself in a very serious form to industrial physicians. They are all at work when discovered with the disease. They depend on what they earn to support themselves and, in addition, possibly, a wife and family, or are contributing to the support of other relatives. Taking them

away from work, as we must, evolves responsibilities from which we cannot escape. It seems imperative that every industry should make provision, if there be no beneficial association, to give ample support to all cases of tuberculosis and their dependents. It must be borne in mind that each class of case requires different handling, and the costs of treatment vary.

The advanced case as a rule should not be sent to a sanatorium provided he or she can safely remain at home and the sanitary conditions are such as to allow home treatment, that there are no children in the home, and that nursing care and medical care can be provided. It must be understood that as they are hopeless cases, many soon becoming bedfast, the expenses incident to their care are higher than in any other type, as constant nursing attention and medical advice is necessary.

The moderately advanced cases may be sent to a sanatorium, or at least should remain in a sanatorium sufficiently long to learn from the institution, by the instructions given them, how to care for themselves, manners of living, and prevention of contagion. After a period of stay lasting from six weeks to three months, if their home conditions are satisfactory, they may return.

Early favorable cases should be sent to a selected sanatorium where only cases of this type are admitted; nothing, in his opinion, is a greater wrong than to intermingle these early favorable cases with those suffering from the disease in an advanced form, many of whom are dying. The majority of the early favorable cases will, if given proper treatment, become arrested cases within six months to a year and return to their work. The incipient cases of tuberculosis are kept under a reasonable amount of discipline respecting rest and general health routine, receive a maximum amount of good nutritious solid food, and in addition milk served at regular intervals as well as a maximum amount of sleep.

The rest home should be located in the country, not so far from the city that relatives cannot visit them easily. It is necessary that the house be made attractive in every detail, especially in respect to amusements, reading material, varied diet, cheerful surroundings, and above all conducted by a woman, preferably a trained nurse, who has the personal and executive qualities necessary to the success of such an institution. The incipient case of tuberculosis can safely be housed with any other type of case. They rarely have a cough, their sputum is negative as to tubercle bacilli, and they present none of the symptoms except loss in weight which characterizes the more advanced type of the disease. Therefore, to the rest house Taylor sends not only incipient cases, but also other patients suffering from malnutrition, anemias, nervous asthenics and those having many other conditions in which rest, change of air and scene with proper diet will soon restore to health. It is his policy in every way to prevent these patients from learning that they have ever been suspected of having tuberculosis—in fact, the word never enters any discussion that he may have with the patient. The consequence is that they are not made apprehensive of their physical condition, and return, after three months' stay in the rest home, completely cured, ready to take up their work. The rules governing their care are extremely simple. He insists on a varied but simple home diet of well-cooked foods, served in an attractive manner, and emphasizes the need of the best of butter, eggs, and milk. As rest is of paramount importance, reclining and steamer chairs with rugs are furnished them. Rest in bed each afternoon for one hour is insisted upon, and the retiring hour at night is 9:30. They are allowed to take walks, and as means of diversion have sleigh rides in the winter and picnics in the summer, and other forms of healthful amusement. They must agree never to absent themselves from the premises without first obtaining permission from the one in charge.

The question may arise, "Is it possible to absolutely be sure that the diagnosis is without question correct in all cases sent to the rest home as incipient tuberculosis?"

In answer, he unhesitatingly confesses that possibly quite a number so diagnosed do not have the disease, but in every case the physical signs present, while not absolutely indicative of the disease, point so strongly in the direction of pulmonary tuberculosis that the element of doubt renders them safer in being so classified, which, following his policy, requires that they be taken away from home and given rest-home treatment. For who can tell just when the havoc of the implanted tubercle bacilli begins as a disease process? No disease affecting industry is more important and demands more care and consideration in the details of its management than tuberculosis, and he knows of none where preventive medicine will yield greater returns.

Like the plant which has wilted from want of air, moisture, and sunshine, the incipient tuberculosis patient will revive, take on new vigor and strength, and finally bloom out with a radiance of health, if given rest, food, air, sunshine, and proper environment. In other words, he is given half a chance to fight a ravaging foe.

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**Intranasal Drainage of the Frontal Sinus Through the Natural Opening.**

In the *New York State Journal of Medicine* for November, 1920, UNGER states that the object sought by all physicians in the treatment of frontal (as well as other) sinus inflammations is the establishment of adequate drainage and ventilation. The attainment of this is attempted, in mild cases, by the application of constricting medicines (cocaine and adrenalin) to the frontonasal opening. In more severe cases the middle turbinates and obstructing polyps may be excised. In still more intractable cases the ethmoid cells may be opened, and in the most stubborn cases external and internal operations on the sinuses are performed.

The three factors that prevent proper drainage in frontal sinusitis are: First, the swelling of the nasal mucosa; secondly, hypertrophied middle turbinates; and thirdly, polyps. He believes the first to be the most important. The nasal mucous membrane, containing much erectile tissue, is subject to physiological engorgement many times during the day. When there is the added stimulus of an infection, the engorgement becomes practically constant.

When it is considered that the frontonasal opening is so small that it often fails to admit the smallest probe it can readily be seen how completely it can be blocked by the swollen mucous membrane.

Adrenalin and cocaine shrink the mucous membrane by direct action on the walls of the arterioles. On normal mucous membrane their action is prompt and efficient. In inflammatory conditions, however, there is exudation of cells and serum about the vessels which prevents the approach of the adrenalin and makes its action slow and incomplete or prevents it altogether. When it is considered, furthermore, that the frontonasal canal is about ½ to ¾ inch in length, it becomes apparent how futile, in some cases, is the use of adrenalin for establishing drainage.

Obstructing turbinates and polyps must, of course, be removed.

The method he describes is meant for use in cases in which the natural frontonasal opening is intact and where no operations more extensive than the removal of polyps or of the anterior tip of the middle turbinate have been done. Briefly, it consists in the introduction into the frontal sinus, through the natural opening, of rubber or fabric drainage tubes and their continuous retention in the nose during the course of the sinusitis.

The instruments used are (1) a slender frontal sinus probe, and (2) rubber, silk, or linen catheters of sizes 4-10 Fr. The largest size catheter that the frontonasal opening of a particular case will admit is used in that case. The ordinary urethral catheters can be used for this purpose cut down 3½ inches from the tip and with perforations punched in the sides at intervals of half an inch.

The technique employed is as follows:

The nasal mucosa is anesthetized and the frontal sinus is probed. The probe is first used by itself to determine the size and di-

rection of the frontonasal opening. If the opening is obstructed by the middle turbinate this must be removed. The size and direction of the opening having been ascertained, the probe is then pushed through the lumen of the proper sized catheter to its end. The probe, encased in the catheter, is then reinserted in the frontal sinus. The catheter is then held loosely by the fingers of one hand and the probe is gently withdrawn by the other, leaving the catheter *in situ*. The catheter is then grasped near its entrance into the opening with a nasal forceps and pushed further into the frontal sinus as far as it will easily go. Being flexible it will pass over projections that will block a metal catheter. The lower end of the catheter is then cut off intranasally, so that the remaining portion rests on the floor of the nose. At the end of this procedure there is then left a tube about 2½ inches in length, extending from the floor of the nose up into the frontal sinus. This tube is left in place for one to two days, when it is removed and replaced by another. Before the tube is replaced the sinus can be irrigated.

The catheter is cut 3½ inches long to begin with because its lower end will then project from the nose after its tip is in the sinus and furnish a place for holding it when the carrying probe is withdrawn. If linen or silk catheters are used, they should be dipped into hot water before being inserted into the nose, in order to make them softer.

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### Observations of an Anesthetist.

RAPOPORT, in the *Boston Medical and Surgical Journal* of November 11, 1920, states that although morphine and atropine as a preliminary to anesthesia should not be used as a routine, in the majority of cases it is a great benefit to the patient as well as the anesthetist. It should not be used in the aged, debilitated, and the very young. But, on the other hand, it is of great advantage to the shocked, highly nervous, asthmatics, and robust. It lessens shock, it diminishes the time of induction, and less ether is required to keep the patient well relaxed for the operation.

So much for the preliminary treatment. Now, as to induction, the use of gas as a preliminary to ether is one of the greatest additions to the field of anesthesia. Not only do we save time at the induction, but we do away with any struggling or opposition on the part of the patient in the etherizing room. It is pleasant to take, and once the patient is rendered unconscious by the gas, we can easily switch over to ether without the patient recognizing the change. It also does away with the gagging which occasionally occurs at the time of induction.

In concluding he gives a few practical points as observed from his own experience. Above all, he says he cannot emphasize too strongly the importance of the utmost concentration of the mind of the anesthetist on his patient. He must be on the alert all the time. The patient's color, breathing, pulse, and the size of his pupils are things that the anesthetist has to be posted on at every moment of the operation. He must also be familiar with all kinds of operations and their different stages. An operation on the gall-bladder or a pelvic exploration requires a deeper anesthesia than an appendectomy or an umbilical hernia. Moreover, the different stages of any one operation require varying depths of anesthesia.

It should always be the aim of the anesthetist to use as little of the anesthetic as possible. He must be able to tell at a glance how deep the patient is anesthetized, and for this purpose he knows of nothing more instructive than the respiration. It is impossible for him to describe the different characteristics of respiration by which he is able to tell the depth of the anesthesia. This cannot be learned out of a book; it must be acquired by experience.

Another point which is of great importance is the color of the patient. One must never be satisfied with a poor color unless the patient is suffering from asthma. In about 99 per cent of cases cyanosis means either too much ether or mechanical obstruction of the respiratory tract. Be prepared with a nasal tube for every patient

who has a short neck, and use it in every case in which there is trouble with the patient's breathing. It saves one the necessity of continually holding forward the patient's jaw. Have the head and shoulders of asthmatics higher than the rest of the body. Keep the head of short-necked people in extension.

If the surgeon remarks that the patient is rigid, never, in the desire to quickly deepen the anesthesia, pour an excess of ether on the cone all at once. The concentrated vapor inhibits the patient's respiration, with the result that less ether gets into the circulation and he is likely to gag and remain rigid. It must be done slowly at the expense of a little time. If the anesthesia is so deep that the breathing becomes slow and shallow, it means that the patient is approaching a stage when he will stop breathing altogether. Stop the ether at once and wait until the respiration becomes deeper and more frequent.

There is one more important thing which contributes toward good anesthesia and which is frequently overlooked. That is the gaining of the patient's confidence. Do not enter the etherizing room and without preliminaries of any kind start the anesthetic. First get into a conversation with the patient, become acquainted, listen to his heart and count his pulse-rate. Show the patient that you are there for his interest and encourage and assure him that everything will be all right. This will overcome his fright and inspire confidence, with the result that he will take the anesthetic more smoothly and will be better relaxed for the operation.

Last of all, do not consider this job finished when the surgeon gets through with the operation. One must see the patient safely in bed. During the recovery he may vomit and aspirate some of the vomitus, which may result in pneumonia or lung abscess, or his tongue may drop backward, causing asphyxia. One should see that all the moisture is wiped off his body and that he is well covered before he leaves the warm operating-room for colder corridors and elevators. When put to bed, see that his head is placed in the position in which breathing is accomplished with the least exertion.

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### The Medical Care of the New-born Infant.

*Modern Medicine* for November, 1920, says it is an incontrovertible fact that the overwhelming majority of infants during the first few weeks of life are not receiving that intelligent supervision, especially in regard to feeding, that is due them. In the home the physician tends to leave the management of the new-born to the nurse, trained or only practical; or to the mother, as the case may be.

Even in private hospitals the attending physician is inclined to manifest but little interest in the baby, and relies to large extent on the nurse in charge of the nursery, as a rule a fairly competent woman. This, at least, is the experience of the author of this editorial, an obstetrician keenly interested in the normal breast-fed baby.

Sedgwick made the facetious statement that the obstetrical attendant's concern in the main seems to consist in the successful separation of the fetus from the mother, and then is prone to regard the infant merely as the by-product of the process. This is a harsh verdict—but who would dare to deny that it contains a great deal of truth?

The present situation is decidedly unsatisfactory and must be changed. Of course, this means that the customary attitude of the physician attending the patient during labor and the puerperium must change. It seems plausible that if he were fully conscious of the great practical importance of this question, and at the same time felt competent to handle the new-born intelligently, he would without fail exhibit the same interest in this as in any other of the medical problems he meets in his daily work.

At present he is lacking in knowledge concerning the specific medical needs of the new-born. Responsibility for this evident deficiency rests entirely with the medical schools. From this view-point a discussion between an obstetrical and pediatrical teach-

er is of some significance. They must settle their dispute concerning their respective competency—not in the interest of those few babies under their care, but for the sake of the medical students, for the ultimate benefit of all babies, born in years to come, under the supervision of these students as future practitioners of medicine.

Instruction in the medical care of the new-born of necessity will have to be given in the maternity wards, as a part of the general instruction in the management of the puerperium. The obstetrician, therefore, offhand would seem the proper man to do it, granted that he is equipped for the task. Otherwise, he would better leave it to the pediatrician. However, under all circumstances the pediatrician must be given free access to the maternity ward. The obstetrician always will be in need of his advice in dealing with suspected or existing anomalies, either congenital or acquired as the result of birth traumatism. It would seem desirable and entirely feasible to make previous service as interne in the pediatric department a condition for the appointment to residentship in the obstetric service.

It is of no particular importance who gives this instruction, but it must be given more efficiently than in the past, if we are to secure practitioners both desirous and capable of taking responsibility for the new-born infant. In the hospital the baby immediately after birth might well pass into the hands of a pediatrician; in practice it will ever be necessary that the physician who attends the mother during pregnancy and labor will attend to mother and baby during the puerperium.

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### Retention Crypts in the Infratonsillar Nodules as Extensive Harbors of Pathogenic Bacteria.

FRENCH, in the *Medical Record* of October 2, 1920, states that little attention has been paid to the presence of chronic infectious material in the chains of infratonsillar or lingual lymph nodes. The tonsilloscope, however, has discovered that these structures, when associated with diseased tonsils, acted as pathogenic foci. They have been very briefly described in the text-books. He had studied particularly the chains of nodules lying in the lateral walls of the pharynx and the base of the tongue, directly beneath the faucial tonsils. These often became the seat of chronic infection.

The writer hesitated at first in introducing operative procedures, on account of the underlying venous network of these structures. Operation disclosed the existence, under the nodes, of a smooth, limiting mucous membrane, obviously a fibrous capsule. Examination of the enucleated structure revealed pus and débris. It was clear that such disordered tissue could not be left without danger to the system. The nodules were easily and safely enucleated from the throats of children. In adults, under tonsilloscopic examination, numerous small slits or pin-points, flush with the surface of the nodules, were shown, with the aid of a thin bent probe, to be minute crypts containing necrotic material, with pathogenic bacteria. The nodules were not present in a state of health. They appeared in the form of foreign structures, set upon the submucosa like a plaster form upon a ceiling. The underlying capsules were a continuation of the tonsillar capsule. The size varied from one-eighth to three-eighths of an inch in children; in adults they increased progressively in size. In children the masses were smooth, round-topped, and firm; in adults they resembled irregular folded material placed on edge. The interspaces formed deep pockets. The lingual tonsil appeared enlarged far less frequently than the faucial tonsil. The surface of the nodule might contain anywhere from 25 to 100 or more openings or crypts, varying in depth; some were shallow, but some were deeply penetrating, and with small mouths, often practically sealing up necrotic material. Such crypts sometimes evacuated themselves from overdistention. Thus far the streptococcus hemolyticus, streptococcus viridans, and staphylococcus aureus had been isolated from these crypts.

The diagnosis was made by means of the tonsilloscope, and with the use of a tongue depressor specially designed by the writer to facilitate examinations. The key to operative measures lay in the use of a block molded to fit over the angle and under the lower edge of the jaw, in such a way as to serve as a resisting wall for an undercutting scoop of the arc of the Sluder guillotine. With this resistance the enucleation of a pharyngeal nodule was quite simple. The technique of the procedure was given in detail.

Disposal of lingual tonsils presented more difficulty, and the best method had yet to be evolved. These structures were so close to the orifice of the larynx as to present a particular problem. Hemorrhage from near-by large vessels was one danger, and the risk of edema of the larynx from septic obstruction was to be feared. A possible solution would be to shave the tops of the nodules, thus cutting away their crypts and freeing the necrotic material. At all events the nodular trunks and pharyngeal branches could be safely enucleated. The blood loss during these operations had been found to be negligible. Any hemorrhage had been so far arrested by pressure by stick-sponges and counter-pressure outside under the angle of the jaw.

The operations were performed under general anesthesia. Other methods, such as curettage, and emptying of the crypt contents, could be tried in selected cases, and in those patients who refused more radical operation.

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### The Need of Vitamines.

HAWLEY, in the *Bulletin of Pharmacy* for November, 1920, reminds us that animal experiments show conclusively that each group of vitamines bears a specific relationship to certain phenomena of growth, nutrition and health. Thus the removal from the ration of the fat-soluble A group is followed by impaired growth, a lack of normal body tone, a dry inflammation of the cornea called xerophthalmia, poor tooth development, rickets, and pellagra.

Withdrawal of the water-soluble B group causes impaired growth, under-development, malnutrition, marasmus, and polyneuritis (beriberi).

Deficiency in water-soluble C vitamines results in impaired growth and scurvy.

Quite recently a preparation has been put on the market intended for therapeutic administration to patients who, from the view-point of the physiologist, are not normal—they are either ill or convalescing from some illness. In nearly all illnesses the digestive organs are impaired, and it is, therefore, unlikely that they will be equal to the task of acting upon the ingested foods so as to liberate their vitamine content. Besides, it is frequently undesirable to give the kind and quantity of food which would be necessary to yield a sufficient amount of a desired vitamine. One rarely prescribes a mess of spinach to a patient acutely ill or to a convalescent with a digestion that is impaired, just because the vitamine that is present in spinach would be desirable.

A scientific combination of the three known types of vitamines affords the physician the opportunity to administer them in a concentrated form without guesswork as to their actual presence, and without a ruinous tax on the very organs which he is attempting to bolster up.

Direct evidence of the effectiveness of extracted vitamines is to be found in recent scientific literature. In the *Journal of Biological Chemistry,* Eddy, a renowned worker in the field of nutritional chemistry, makes this point in a telling manner by showing that children whose previous diet contained theoretically enough vitamines were stimulated to rapid growth and development after a small quantity of extracted vitamines had been added to the diet. His frank explanation of this phenomenon is that extracted vitamines are more readily available to the body than those normally contained in food.

Perhaps it is not going far astray to say

that a scientific combination of vitamines should be prescribed in all cases of lowered body tone and subnormal nutrition from any cause, and in diseases due primarily to a lack of vitamines—deficiency diseases. In the list of deficiency diseases may be included scurvy, beriberi, marasmus, malnutrition, and possibly rickets and pellagra. As a nutritional tonic such a combination is at once suggested in the convalescence from all infections, febrile and wasting diseases.

Every one knows how languid and ambitionless the convalescent from influenza and similar infectious diseases feels. Much of this weakness is attributable not to lack of food, but to a failure of assimilation, and consequent undernutrition.

In tuberculosis one of the prime objects of the treatment is to force nutrition. How can this be better accomplished than by giving vitamines as a supplement to suitable dietary measures?

In simple anemia, chlorosis, and other blood diseases, successful treatment often depends upon prompt assimilation of concentrated nutrients. This is just another way of saying that the patient needs vitamines.

The subject is an interesting one; one we are going to hear much more about during the years just ahead of us.

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### Warning Against Orange Beverages for Medicinal Purposes.

The *Boston Medical and Surgical Journal* of November 25, 1920, states that a recent issue of the Public Health Reports has called attention to the fact that in some instances mothers, by the labels and other advertisements, are feeding "fake" orange beverages to their children under the impression that they are giving them the orange juice recommended by their physicians. It has been stated by the Bureau of Chemistry that in most cases these beverages are nothing but sweetened carbonated water, flavored with a little oil from the peel of the orange, and artificially colored; as a rule these preparations are of no medicinal value, because they do not contain the organic acids and the vitamines which are contained in real orange juice. Manufacturers of these spurious orange beverages often seek to deceive the purchaser by means of suggestive statements and pictures prominently displayed to attract instant attention, while, to escape prosecution for direct violation of the food and drugs act, they print other statements correcting the misleading features in inconspicuous places. It has been ruled by the Bureau of Chemistry, therefore, that the terms, "ade," "squash," "punch," "crush," and "smash," when used in conjunction with the name of a fruit, can be applied correctly only to beverages which contain the edible portion of the fruit or juice of the fruit named.

In order to prevent mothers from being misled by deceptive labels and advertisements, it has been suggested that physicians, in recommending orange juice for children, warn the mothers against the substitution of the beverages for the juice of real fruit.

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### Ethyl Chloride.

GUEDEL, in the *Indianapolis Medical Journal* for November, 1920, states that this agent is frequently employed for short anesthesias, but that its action is little understood by many who employ it.

It is the most rapid and powerful single anesthetic agent known, except ethyl bromide, which is not used alone.

With an overdose of ethyl chloride, two entirely different sets of symptoms may present.

Assuming five patients to be overdosed, four of them will manifest the muscular spasm type of poisoning, while the fifth will manifest the respiratory depression type.

*Spasm Type.*—With the too rapid administration of this agent to overdosage, the patient will display at first clonic, followed immediately by tonic spasm of the muscles of the face and throat. There will appear a remarkable sardonic grin, accom-

panied first by tonic spasm of the masseters, locking the jaws with an unbelievable rigidity. About the same time there occurs a crowing respiration due to laryngopharyngeal spasm. With the continuance of the drug, respiration becomes more embarrassed by the progressively increasing spasm of the throat muscles, until it is cut off as effectively as if the trachea were completely constricted, and a definite state of asphyxia is present. Under this circumstance it is extremely difficult to get the mouth open, and the patient may die before this is accomplished. Death here is due to active asphyxia.

This spasm may occur in any type of patient. There is no way to determine before the anesthetic is administered what to expect. If the anesthetic is administered by a novice, it is wise to insert a mouth-gag before starting.

*Respiratory Depression Type.*—The incident of this is less frequent than the spasm type, and while more frightful in the beginning, it is easier handled if the anesthetist be alert.

With an insidious onset, the respiration during the late induction stage, or at any time during the conduct of anesthesia, becomes quietly and progressively shallower until it ceases altogether. This course from the onset consumes only about twenty to forty seconds. The picture is one of fatal shock, with extreme pallor, wide open, staring eyes with completely dilated pupils, and absolute muscular flaccidity, with no effort at respiration whatever. It is notable that at this point the pulse shows no change. With the mask removed, artificial respiration is to be started at once, making sure that there is the passage of air into and out of the lungs. The ethyl chloride is so rapidly eliminated from the circulation that but a few artificial respiratory movements are sufficient to allow the excess gases to be carried from the region of the medulla, and spontaneous respiration is again inaugurated.

Here again there is no way of anticipating this accident. There is no particular type in which it occurs. It, like the spasm, must be watched for and handled as it appears.

When not properly handled, death will ensue from passive asphyxia, with the heart stopping in from one to four minutes after cessation of respiration.

Guedel concludes by saying that ethyl chloride is a very useful anesthetic agent, but, like the racing automobile, it should not be handled by a novice.

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### The Passing of the Septic Hand.

In an editorial on this subject the *Boston Medical and Surgical Journal* of November 25, 1920, states that when one considers the inestimable importance of the human hand in performing the work of the world, it is somewhat surprising how long an intensive study of its infections and the correct operative treatment was delayed. It was not until the work of Kanavel in this country that the subject received the serious attention which it deserved. Before this era almost anybody was considered competent to treat and operate upon a bad septic hand, though a simple operation for acute appendicitis called for definite surgical skill; the fact being that a careful and well-planned operation to save the hand is much the more difficult.

It is a cause for congratulation that during the past few years the patient with a serious septic hand is rarely seen in the surgical out-patient clinics of our large hospitals.

There are two reasons for this fortunate fact. First, the general public are better educated to the importance of attention to septic troubles of the fingers, and minor cuts and scratches.

It is a common occurrence at the present time for people to seek relief for these troubles at the hand of the surgeon, as the patient says: "I was afraid I might have a badly infected finger or hand unless I had it fixed properly at first."

The other reason for the great lessening of these cases is the improvement of oper-

ative procedures for the relief of the less serious septic conditions; careful thought and reasoning as to the best methods of treating the different types of infection, superficial sepsis, superficial felons, tenosynovitis, and the like.

It is indeed no small triumph that these unfortunate results of ill-advised treatment, which sometimes cripple the wage-earner most grievously, or render him a charge to his family, are at present so comparatively rare.

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**Alcohol, Fatigue, and Mental Activity.**

In an editorial on this subject the *British Medical Journal* of November 6, 1920, states that the Medical Research Council has published a third memoir dealing with experimental investigations of the influence of alcohol on mental activities. The experiments recorded were performed at the Psychological Laboratory, Oxford, by McDougall and May Smith; some of them deal with the action of chloroform, opium, strychnine, and caffeine, but they confine themselves to a description of those concerning alcohol. These investigations, like Vernon's experiments, described in the issue of October 23, are open to the criticism that they were made on two subjects only; against this must be set the fact that the writers, following River's example, disguised the drugs taken and employed control mixtures indistinguishable from them, so that it was possible to eliminate any suggestion which might arise from knowledge as to which drug (if any) was being taken.

Three methods of measurement of the effects of drugs were employed. The first test was the marking (by a pen) of red circles, and (by a mechanical device) of blue circles, printed on a continuous band of paper tape, which was made to pass at the rate of 5.8 circles a second behind a window in the top of a desk. In the second test the subject was required to reproduce verbally in correct sequence a complete list of forty words previously dictated to him at the rate of thirty a minute; each pair of words had some association, the appreciation and recollection of which formed an important part of the mental test—for example, mountain, plain, ugly, beauty, Venus, Greece, oil, smooth, etc. In one series of experiments the first and second tests were combined. The third test was the counting of the rate of reversal of the apparent direction of rotation of the shadow of a laboratory "windmill." McDougall has previously shown that an observer has a certain power of favoring one or other phase of such an alternating perception, of which the ambiguous cube and staircase figures are more familiar examples.

For the purpose of the present study the plan was adopted of holding fast each phase for the longest possible period, and when in spite of the mental effort the direction changed, of endeavoring to maintain the new phase. Using the "dotting machine," McDougall and Miss Smith found that absolute alcohol mixed with water increased the mean number of errors from 80 to 97 when 10 Cc. had been swallowed, from 77 to 109 after 15 Cc., and from 70 to 97 after 20 Cc. Similarly, the ingestion of alcohol was followed in memory tests (although here the experiments were fewer) by a well-marked loss of power of recall, and in the windmill tests, which appeared to afford a specially delicate index, by a striking reduction in the number of phase alterations, which was taken to denote a raised resistance of the cerebral synapses.

It will cause no surprise to learn that the taking of alcohol was followed in all the tests by a subjective feeling of greater ease —in the "dotting test," for example, by a "pleasing conviction" (later found to be erroneous) that the work done was unusually good. Experiments were also undertaken to determine the effect of different dilutions of alcohol and of variations in the period which had intervened between its ingestion and that of a meal. In one set of experiments the errors increased 160 per cent after taking 20 Cc. alcohol in 33-per-cent solution, compared with 22 per cent after taking the same amount in 10-per-cent solution. When 30 Cc. of alcohol diluted

to 60 Cc. was taken directly after a meal, the increase of errors was 6 per cent; the same dose taken from two to eleven hours after a meal was followed by an increase of errors amounting to 118 per cent. These results are in accord with those recently published by Dr. Vernon. It appears, however, that in one specially limited and sharply defined set of circumstances alcohol may exert a beneficial effect on mental activity.

Using the "dotting machine," these investigators, in the course of an examination of the fatigue which ensues from a voluntary cutting down (for three nights) of the usual amount of sleep, found that during the first three days the average errors became fewer; during the succeeding thirteen days the errors gradually rose to a number considerably higher than normal, the return to normal being somewhat irregular. In the first two phases of this cycle the increase in the number of errors following an ingestion of alcohol was well marked; toward the end of the fatigue cycle, however (on the thirteenth and fourteenth days, for example), the number of mistakes made was considerably diminished after 15 Cc. of alcohol had been taken. Similar results, which could be shown not to be due to habituation to the drug, were obtained in experiments in which the memory test was employed.

In examining the effect of alcohol in the normal, non-fatigued state, a few instances were encountered in which a decrease in the number of errors followed the taking of alcohol; in these cases, with one exception, the statement (recorded before the test) of subjective feeling was to the effect that the experimenter felt "very tired." In certain stages of recovery from fatigue the taking of alcohol would therefore appear to be followed by an increased mental activity, as illustrated by these tests. The writers suggest that if these results are not purely personal, "then probably one reason for the very uncertain and contradictory results that investigators record with alcohol is the varying condition of the body with regard to fatigue."

## Influence of Dilution on the Toxicity of Alcohol.

WALTER, in the *British Medical Journal* of November 6, 1920, in a letter to the editor says, adverting to Dr. Vernon's experiments on dilute alcohol and drunkenness, recorded in the *Journal* of October 23, he made some similar observations, not on himself, but on a German guide in Berlin in 1912.

This man easily and regularly drank over twenty liters of beer in the day. Walter paid for them himself, so the facts are engraven on his memory. He started with a couple before breakfast, four between breakfast and lunch, a couple of liters at lunch, three more before dinner, and the remainder easily between dinner and bedtime. A little of it was Pilsener—4 to 5 per cent of alcohol; but most of it was the stronger Munich—6 to 8 per cent alcohol.

His German friend thus consumed over thirty-seven ounces of absolute alcohol in the day, but he did not exhibit the least sign of inebriety.

The case proved to his satisfaction that where alcohol is diluted twenty or thirty times with water it is almost non-intoxicant.

Seeing the enormous quantities of bock consumed in Berlin he sought in the hospitals evidences of cirrhosis or other signs of alcoholic poisoning. He found no more than would be yielded by any other city of its size. In Munich, he was told, there are some evidences of cardiac hypertrophy, due simply to the strain of pumping so many gallons of fluid through the kidneys.

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## Treatment of Subacute Nephritis by Kidney Decapsulation.

HORDER, in the *British Medical Journal* of November 13, 1920, states that he does not go fully into the theoretical aspects of the subject, but thinks it is better that actual experience of the procedure should be regarded as the main part of his communication. It would, of course, be absurdly unwise to dogmatize upon so little material.

But consideration of his four cases, together with careful analysis of all the available records, leads him to the conclusion that there is a clinical type of nephritis in which —when thorough general measures have proved unavailing, and a reasonable time element, during which it is known that resolution not infrequently occurs, has passed— decapsulation becomes a definite indication and promises satisfactory results. This type is, he thinks, not inappropriately termed subacute nephritis, and is characterized by extensive and considerable edema, massive albuminuria with casts in the urine, toxic symptoms of the chronic uremic kind, and an absence, or the presence in only slight degree, of cardiovascular changes. By cardiovascular changes he means anteriocapillary fibrosis, hypertrophy of the left ventricle, arterial hypertension, and renal degeneration. This was the state of things in both of his cases that resolved completely after the operation. In the two cases in which some improvement followed the procedure, but no cure, definite evidence of cardiovascular changes was present, and the type of disease suggested a general involvement of the arterial system rather than a local inflammatory process in the kidney.

This consideration confirms the general idea that subacute nephritis is a different disease altogether from generalized arteriocapillary fibrosis, as a part of which process the kidney vessels suffer early, and the kidney substance suffers secondarily to the disease in the vessels. In subacute nephritis the causative agent may be regarded as either past and over, or, if still present, it may be regarded as producing its effects primarily upon the kidney parenchyma; in chronic interstitial nephritis, granular kidney, and (or) the arteriosclerotic kidney the causative agent may be regarded as operating chiefly upon the whole arteriocapillary system, including the kidney glomeruli.

He refers to the fact that analysis of the recorded cases of decapsulation confirms his own experience that it is these cases of subacute nephritis which are specially adapted to this form of treatment.

Horder points out that Boyd has quite recently (Association of Physicians' meeting, Manchester, 1920) reported such a case—a man aged forty-one, in whom dropsy was extreme, necessitating several tappings of the abdomen and the legs; albumin was present to the extent of 32 grains to the ounce, with dyspnea and severe headaches. After five months' treatment, with gradual decline, the kidneys were decapsulated. Diuresis began at once, and progress was rapid. Three years later the patient was reported to be at work and well, although the urine was still albuminous. In this case the systolic blood-pressure was not higher than 130 mm. Hg. In a second case reported by the same author, similar clinical features were present; the blood-pressures were even lower (systolic 79, diastolic 55); acute uremic symptoms appeared in this case and the kidneys were stripped during this serious phase. Five months after the operation this patient was said to be in apparent good health, although a trace of albumin was present in the urine.

Horder does not say that decapsulation does no good in cases of arteriosclerosis with kidney involvement—several scattered cases in the literature, and his second pair of cases, prove that it does do good; he wants to emphasize the opinion that the type of case most suited to the treatment, and most likely to justify its adoption, is not this type. For cases of advanced granular kidney he feels confident that, from a study of the records, the operation is contraindicated.

One other clinical type of nephritis requires brief mention, and that is acute nephritis. He has had no experience with decapsulation in this disease. It is probable that the earliest of all recorded cases—namely, of Harrison—were cases of this kind, though not recognized as such prior to the operation. It is certain that not a few of Edebohl's cases were suffering from acute nephritis. The occurence of hematuria seems to have stimulated the surgical instinct. It is highly probable that the kidney puncture or incision undertaken by

these pioneers did good. The doubtful point is whether the procedure was necessary in order to secure the result. This consideration does not make it illogical to say that puncture or incision of acutely inflamed kidneys is, in his opinion, quite justified whenever anuria and uremia persist despite energetic general measures.

Concerning the mechanism by which the results of decapsulation are brought about he has little or nothing to say of actual fact. It is generally thought that depriving a kidney of its capsule, and thus bringing the cortex into close contact with the perinephric tissues, leads to the formation of new vessels which anastomose with those of the kidney itself, thus providing for the removal of inflammatory exudates and assisting in reëstablishing renal function. And although the results of experimental work by various investigators have been at variance on this point, this process of formation of new vessels may be regarded as actually taking place. In 1905 Boyd and Beattie reported the results of a post-mortem examination on a case of decapsulation, and demonstrated these new and anastomosing vessels *in situ* four months after the operation had been undertaken. But we are faced with a difficulty: The good effects of decapsulation are immediate. whereas this new system of vessels must necessarily take time to form. Are these rapid effects due to the relief of tension? This can scarcely be so, seeing that—apart from the cases of acute nephritis, which are in a different class—little or no actual tension is seen to be present at the time of the operation. The question must remain for the time unanswered—unless it be an answer to say that the mechanism of production of the diuresis and disappearance of edema and of symptoms generally is of the same kind as in the process of "wet cupping." For the process of decapsulation *does* amount to a very direct and very effective "wet cupping" of the kidney itself, and may therefore be not inappropriately compared with the indirect and too often ineffective "wet cupping" of the loin formerly in vogue in the treatment of nephritis.

We know very little about the exact relation which the perinephric tissue bears to the capsule of the kidney and to the kidney proper. We get glimpses at times of possible important bearings of this cellular tissue upon the organ embedded in it and also of a converse relationship. But actual observations and experimental work are as yet very slight. Necropsies carefully undertaken in cases of chronic nephritis frequently reveal, even to the naked eye, varying degrees of perinephritis, and (though chiefly in arteriosclerotic cases) new vessels of not inconsiderable size are seen entering the kidney capsule.

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### Standardized Roentgen Ray in the Treatment of Skin Diseases.

Fox, in the *New York Medical Journal* of November 27, 1920, in concluding a paper on this topic, states:

1. The Roentgen ray is probably the most useful therapeutic agent for the treatment of skin diseases.

2. Its versatility is shown by the great variety of conditions in which it can be used, including inflammatory diseases, those depending on epilation, pruritus and hyperidrosis, lymphatic disease and cancer.

3. It is only by means of accurate standardization that its full value can be realized and its dangers eliminated.

4. Standardized treatment requires the use of a Coolidge tube and interrupterless transformer. The quantity of ray can then be measured by pastilles or by arithmetical computation.

5. The routine use of pastilles is unsatisfactory, as considerable experience is required and as they introduce the element of personal equation.

6. By means of the simple method of computation devised by MacKee and Remer, the treatment of skin diseases by the Roentgen ray has been revolutionized and a great contribution made to dermatological therapeutics.

7. The most brilliant results in his experience have been attained in eczema and

in ringworm of the scalp, where the Roentgen ray is certainly the method of choice.

8. It has also been of great value in acne, psoriasis, seborrheic eczema, lichen planus, and epithelioma.

9. In chronic sycosis, localized hyperidrosis, and some cases of localized pruritus it is the only remedy (except radium) that can effect a permanent cure.

10. Leukemic conditions and mycosis fungoides cannot be even temporarily improved by anything except the Roentgen ray (or radium).

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### Resuscitation in Death Under Anesthesia.

In the *British Medical Journal* of November 6, 1920, FISHER says it may seem paradoxical, but it is nevertheless true, that the manipulations of cardiac massage fortuitously produce a better amplitude of respiration than is obtainable by the external artificial methods. It is difficult, therefore, to understand the reason for carrying on artificial respiration concurrently with cardiac massage, as is so frequently reported. If cardiac massage is being performed lung ventilation at once ceases to be a matter of concern; any accessory means employed is redundant. In the bimanual manipulation of cardiac massage the dome of the diaphragm is forcibly raised simultaneously with compression of the front of the chest, and a forced and complete expiration is thus brought about. This is followed, as the pressure is suddenly released and the descent of the diaphragm is aided by that of the liver (which is levered down by the back of the hand), by a deep inspiration. In comparison with Sylvester's method the effect upon the freedom of respiration is audibly greater; this is what would be expected if one considers that the diaphragm, the chief factor in the respiratory act, is directly brought into play. It is important to bear in mind this contingent incident to cardiac massage, for in cases of respiratory arrest with gradually weakening heart-beat an earlier decision can be made to undertake a procedure by which not only the circulation but the respiration will benefit.

Cardiac massage has an influence upon the circulation that he has not seen previously described. Well before a first heart-beat is initiated a change in the appearance of the patient is witnessed, the pallor of the skin gradually being replaced by a perceptible flush. This indicates in the first place that the manipulations supply a part of the necessary force—previously in abeyance—to propel the blood stream, and by the agency of the intracardiac valvular arrangements set in motion an artificial circulation that is comparable to a physiological model made up with tubing and a Higginson's syringe. In one of his cases the intraocular tension was observed to improve, and in Mollison's published case the pupil of the eye was observed at this time to become smaller. The heart is at first uncertainly palpable in its extreme diastolic flabbiness, but prior to the occurrence of its first contraction it is felt gradually to become more firm. The first heart-beat is minimal, and of the character of a "twisting kick," and the contractions, once started, assume regularity and gain strength as the manipulations proceed, until after some six to twelve contractions a maximum excursion is reached, which remains constant, at remarkable vigor.

The staircase phenomenon of progressive augmentation is attributed to the beneficial effect of contraction. The extraordinary force of the maximal cardiac contractions is regarded as dependent upon increase of muscle fiber length that occurs with exceptional ventricular relaxation and distention. Other influences that may work to the same end are the unprecedented cardiac rest, the enhanced coronary circulation consequent upon massage, the persistent abeyance of governing inhibition, and cumulative muscular and augmentor stimulation mechanically induced. However this may be there appears reason to continue with massage until automatic contractions are well established at maximum vigor, as

reflected in the radial pulse. In a case in which he ceased massage before the heart-beats had become maximal they again stopped, and failed to recur in spite of renewed intervention. In cardiac massage the auricular parts of the heart are not accessible to the manipulating hand, approach being hindered mesially by the inferior vena cava, and from before by the coronary ligament. Practically it is the ventricular part of the heart only which is squeezed; if an attempt is made to include the auricular portion within the scope of the operation, the heart is lost from the grasp, and the respirations become inadequate or cease.

It would appear that in the initiation of the heart-beat artificial circulation must constitute an initial causal factor that is of paramount importance whatever may be the actual determining exciting cause. Possibly an artificial circulation through the cardiac and central nervous tissues is all-sufficient, by its influence upon elimination and supply, to reconstitute a normal state in which functional activity becomes spontaneous. The cause of the heart-beat, according to present physiological teaching, is said to lie in the cardiac muscle, the salts of the blood supplying the osmotic conditions that lead to its irritability and contractility, and affording the necessary constant stimulus for the heart's automatic action. But it is difficult to conceive in cases such as emotional syncope, where these conditions have been little disturbed, why the heart should remain permanently arrested in action and not spontaneously restart beating. Some other than an inherent exciting factor would seem, therefore, not to be precluded. It is possible that once nutritive conditions are restored and the irritability of the heart is raised again to a susceptible threshold, it responds by a first beat to the mechanical stimulation of the hand (or to an artificially produced intracardiac tension, as demonstrated experimentally by Gaskell with the apex of a frog's heart).

Further observations, corroborative and otherwise, are required of clinicians who have occasion to resuscitate by cardiac massage cases of death under anesthesia, and it will be of great help if an understanding of the processes concerned is quickened by a clear pronouncement by physiologists, to whom we must look for guidance and more definite direction.

The methods of performing cardiac massage are as follows:

*Subdiaphragmatic Massage.*—An opening is made in the epigastrium to the left of the middle line, and large enough to admit a hand, which is passed, palm upwards, between the left lobe of the liver and the diaphragm. The fingers are pushed well backward and upward against the left cupola of the diaphragm, and a forced jabbing movement is made behind the ventricular region of the heart, so as to squeeze it effectively against counter-pressure made by the other hand on the precordial region of the chest wall. The compressions are repeated at a rate of about forty a minute (a more rapid rate is not practicable), and are carried on until the heart-beat is reëstablished with regular rhythm and maximal power as reflected in the pulse. The abdominal wound is then sutured.

*Transdiaphragmatic Massage.*—This is a technique devised by Bost. The abdomen is opened as before, and the further steps are only proceeded with if subdiaphragmatic massage fails. The costal attachment of the diaphragm is divided sufficiently to force an opening into the left pleural cavity, through which the right hand is insinuated, and the heart grasped and squeezed as it lies in its pericardial sac. Artificial respiration must be carried on throughout the operation. In the case recorded by Bost the measure met with success after failure of the subdiaphragmatic method.

*Transpericardial Massage.*—This very difficult method has not in practice met with gratifying results. A flap of the precordial thoracic wall is raised, the pericardium opened, and the heart directly squeezed.

*Supradiaphragmatic Massage.*—This method affords ready access. A lower intercostal space on the left side is quickly opened by a lengthy incision, well retracted, and a hand is introduced into the left pleural cavity. The heart, enclosed in its pericardial sac, is grasped and squeezed. He has seen no mention of such an operation being designed to meet the occasion. With failure by subdiaphragmatic massage it arises as an alternative to the method designed by Bost, who claims as an advantage of his plan that occurrence of pneumothorax is practically precluded by the close fit of the diaphragmatic opening to the wrist, and that artificial respiration can be efficiently carried on.

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### The Pharmacological Action of Salvarsan.

In the *Journal of Laboratory and Clinical Medicine* for October, 1920, JACKSON and RAAP state that first-class preparations of salvarsan have almost no direct action on the bronchial musculature of the dog. It seems obvious that acute symptoms resembling anaphylactic shock, or the so-called "nitritoid crises," if produced by *good* preparations of salvarsan cannot be due to a spasmodic contraction of the bronchioles. But they are not sure that this action might not occur in the case of especially toxic samples of the drug.

They have studied the action of salvarsan on the pulmonary pressure by means of an especially sensitive method. They believe that even the smallest injections of salvarsan exercise some immediate action on the pulmonary pressure. Its detection depends only on the sensitivity of the method employed for its investigation.

When the pulmonary pressure has been greatly raised by salvarsan they have noted that injections of adrenalin tended to lower this pressure, and also to restore the excursions of the pulmonary pressure due to the respiratory movements of the lungs, when these had been previously greatly reduced by the salvarsan. They believe this results mainly from a mechanical shifting of the blood from the action of the adrenalin on the systemic vasculature.

When solutions of salvarsan are injected into the general circulation by way of the femoral artery the pulmonary blood-pressure is still raised by the drug. But the rise in pressure is less than if the drug were injected by the femoral vein.

When solutions of salvarsan are injected into the portal vein and are thus carried through the liver before passing into the general circulation, it is found that the drug produces but little if any effect on pulmonary pressure, although if the dosage is very large the pulmonary pressure may be raised slightly, apparently only as the result of an increased volume of fluid in the vessels. But toxic doses thus injected tend to lower the pulmonary pressure.

They believe this action of the liver is brought about by a precipitation of the drug in the capillaries and arterioles of the liver. This apparently does not correspond to the ordinary detoxicating action of the liver as manifested on many poisons.

This precipitation in the liver takes place quickly, but it does not prevent some portion of the drug from passing on into the general circulation. The systemic pressure may fall to a proportionately much greater degree than does the pulmonary pressure.

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### The Mechanical Effect of Fluid in the Pericardium on the Function of the Heart.

The *Indian Medical Gazette* for November, 1920, writing on this subject under the heading of "Psychological Notes," states that Yas Kuno (*Journal of Physiology*, Vol. LI, Nos. 4 and 5) describes experiments designed to throw light on the effects of increasing the intrapericardial pressure. Most of the experiments were carried out on the heart-lung preparation in dogs. Ringer's fluid was introduced into the pericardium under pressure. The pressure in the pericardial cavity, aorta, and vena cava

were recorded simultaneously. The following important conclusions were arrived at:

1. A very small amount of fluid in the pericardium causes diminution in the output of the heart. By further addition of fluid the output diminishes regularly.

2. The arterial pressure changes only slightly until the amount of fluid in the pericardium reaches a certain limit. Beyond this limit the addition of a small amount of fluid causes a distinct fall of arterial pressure.

3. The height of intrapericardial pressure which brings the circulation of blood to a standstill is just the same as that of venous pressure. If the venous pressure be raised during the standstill of the circulation, the blood-flow is restored.

4. In the intact animal it is very difficult to raise the venous pressure by injection into the veins. An infusion of a large amount of blood causes no rise of venous pressure nor dilatation of the heart, or only a brief one. Such an infusion is, therefore, of no advantage to the circulation, which thus is hindered by pressure of fluid surrounding the heart.

5. Adrenalin diminishes the volume of the heart; the intrapericardial pressure may therefore be decreased. In the intact animal it causes also a slight rise of venous pressure. It therefore affects very favorably the heart when compressed by fluid surrounding it.

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## What Are Vitamines? And What They Do.

The *Indianapolis Medical Journal* for December, 1920, in an editorial on this subject, reminds us that in the February, 1917, issue of that journal it called attention to an article in the *Schweizer Aerzt* by Stirnimann, who had made studies of nutrition and growth upon subjects dieted with artificial excess of vitamines made from rice pericarp. After animal experimentation, he also fed the solution to children in an orphan asylum, aged two to sixteen years; forty-three per cent had goitre. The test lasted four months. The patients were underweight and normal controls. One group received butter, the other none. The controls had no special diet. The underweights, who received the equivalent of half a grain of vitamine daily, lost no weight. Those who received five grains of butter daily lost no weight, and in both there was an aggregate gain of weight over normal. In these experiments the individual child showed under excess of vitamine, increased gain in weight. In some instances there was some retardation of growth.

Since the importance of vitamines has come into prominence, the U. S. Department of Agriculture at Washington has sent out printed matter concerning the question, What are vitamines? It says, "It is best described by what they do." This source gives us condensed information worthy of reproduction.

That the vitamines are compounds absolutely essential in the food, in order to maintain the weight of the body and produce growth, has been definitely proved. The lack of vitamines causes deficiency diseases, so named because they are due to lack of something in the diet. Vitamines are present and are needed in such small quantities in the food that chemists have not yet been able to isolate them from the many other compounds which are in foods. For this reason we know very little of the vitamines.

According to a statement by John, in charge of nutrition work in the Bureau of Chemistry, U. S. Department of Agriculture, vitamines have been classified into three different types, depending upon the functions which they have in promoting well-being and growth.

The first type is known as water-soluble vitamines, and these are necessary in order to obtain growth from food. Lack of these causes beriberi, which manifests itself by disease of the nervous system and by other symptoms. These vitamines are found in seeds, in green plants, in certain bulbs and fleshy roots and fruits, and in milk and eggs, as well as in certain organs in the animal body. The seeds referred to include beans, nuts, and the various cereal

grains. When cereals are very highly milled in order to obtain a very fine white flour, a large part of the vitamines may be removed. Vitamines are also lost when rice is polished in order to remove the outer layers, which contain most of the vitamines. It is for this reason that a diet consisting mainly of polished rice may cause beriberi; while unpolished rice does not cause this disease.

The second type is known as fat-soluble vitamines, and these are found in butter, eggs, milk, and in certain animal organs such as the heart, kidneys, and liver, and to some extent in other fats, as well as in green vegetables. They also exist in smaller quantities in certain seeds. When fat-soluble vitamines are absent from the diet animals and man are subject to a disease of the eyes, which appears to be related to xerophthalmia, and which, if prolonged, may produce blindness.

The third type is known as antiscorbutic vitamines—that is, those which prevent scurvy, which manifests itself by disease of the bones as well as in other ways. These vitamines are found in oranges, grapefruit, lemons, and other citrus fruits, and in green vegetables such as tomatoes, spinach, and lettuce, and in eggs and raw milk. The drying of vegetables frequently destroys the activity of the antiscorbutic vitamines. The best source of vitamines is in the leafy parts of vegetables, and this is one of the reasons why spinach, lettuce, and cabbage are valuable foods.

We sincerely hope the efforts of Parke, Davis & Company to give the profession a preparation of concentrated vitamines in a convenient form for therapeutic use will meet with success. [This has now been done.—ED.]

Concerning vitamines we may conclude that they are essential to nutrition. If many of the diseases which we know little about are caused by the disturbance of nutrition, then the vitamines must be considered as a factor. If one is to use them as therapeutic agents we especially may look for relief in deficiency diseases and those characterized by disorders of nutrition.

## Pernicious Anemia.

CARR, in the *American Journal of the Medical Sciences* for November, 1920, in reviewing the results of his study of one hundred and forty-eight cases, finds:

1. The clinical complex known as pernicious anemia presents certain characteristic blood findings, particularly the high color index, the presence of many large erythrocytes and of nucleated red cells, especially megaloblasts, and a tendency to a leukopenia, with a relative lymphocytosis; the clinical symptoms, though secondary in importance from the standpoint of diagnosis, are yet distinct and definite. The progressive weakness, the gastric disturbances, the dyspnea, pallor, the cardiac findings, and the edema of the feet are the most typical and constant findings.

2. Though pernicious anemia has its own characteristic diagnostic findings, these may be simulated closely by anemias resulting from various diseases; in fact, the blood picture of pernicious anemia may be presented exactly as the result of some definite septic, toxic, or malignant condition. The diagnosis should rest not on the blood findings alone nor on the blood findings and symptomatology, but on these two features in the absence of any discoverable cause for the anemia.

3. The disease is more common in males, and is most frequent in the fourth and fifth decades of life.

4. The cardiac symptoms and physical findings (the murmurs and the dilatation of the heart) are so constant as to be looked upon as among the most common symptoms of the disease. Anatomically valvular disease is not a part of pernicious anemia; the cardiac findings are the result of myocardial weakness and relative insufficiency. Ascites and anasarca are not symptoms of pernicious anemia, though there is a possibility that they may result from cardiac incompetency; this event is so unusual that their presence demands explanation.

5. The systolic blood-pressure is almost never above normal, but tends to be below the lower limit of normal; the diastolic

pressure is disproportionately low and the pulse pressure high.

6. The urine is usually of a fairly low specific gravity, rather increased in quantity, and rarely contains albumin. The presence of albumin is not to be accepted as a usual finding in pernicious anemia; its presence with casts means nephritis, which may be the cause of the anemia rather than the effect.

7. Pernicious anemia is characterized by an irregular temperature, which is not often above 101°; there are often recessions to normal of variable duration.

8. Achylia gastrica is so much the rule that the presence of free HCl may justifiably raise a doubt as to the diagnosis.

9. The Wassermann reaction occurs infrequently in pernicious anemia. In 46 cases there was a percentage incidence of 6.5; the general run of cases in a large charity hospital would probably show a higher percentage. It is possible that certain changes in the blood incident to the disease interfere with the reaction.

10. The gradual decrease in the leucocyte count, especially in the relative and absolute number of polymorphonuclears, is of serious prognostic import. The diagnosis of pernicious anemia should be made with the utmost reserve in the presence of a leucocytosis.

11. The negative spinal fluid tests in the presence of well established cord disease point to a toxic degenerative process in the cord rather than an inflammatory process. Disease of the cord, with pernicious anemia, usually means an involvement of the lateral and posterior columns, a combined cord lesion. The presence of evidences of cord disease is of unfavorable prognostic import; the prognosis in these cases is grave, out of proportion to the blood findings as compared to the cases not so complicated. These patients are less likely to live long enough to develop advanced grades of anemia.

12. Tranfusion of blood will not cure but will often prolong the patient's life. The severe reactions which occurred in his series were likely the result of imperfect technique; the procedure has really been developed from its inception in the years covered by this study; transfusions are now being done with a much lower percentage of reaction. Yet the experiences noted here may have a valuable lesson for us. The transfusion of citrated blood is a simple procedure, but not a harmless one. Before the operation is undertaken the bloods of donor and patient must be demonstrated to be compatible by an acceptable and approved technique.

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### Scopolamine-morphine Narcosis in Labor, Called Twilight Sleep.

In the *Indian Journal of Medicine* for October, 1920, DAS reviews his further experience of 34 cases from 1918 to 1920 of normal labor conducted under scopolamine and morphine narcosis, which shows that the method is valuable in suitable and selected cases.

He states that the selection of cases should rest with the obstetrician and the treatment should not be dictated by the patients.

Those who have had the largest experience of scopolamine-morphine in obstetrical practice say that the method should be used only by the obstetric specialists.

Although some authorities hold different views, the author's present opinion is that the physician must be in constant attendance on the patient. He does not mean that the doctor should be at the side of the patient during the entire period of labor, but that he should be either on the premises or ready with his motor and telephone waiting in his house. The fact of having to be in constant attendance is a great obstacle in making the administration of these drugs popular in private practice.

Doctors in private practice have very frequently a number of responsible cases all at the same time in their hands, and if they were to devote their time and attention entirely to one particular case, the other cases would be neglected. Even if this

could be done it would mean a heavy fee, which may deter the average patient of moderate means from undergoing the process of painless childbirth.

Further, a physician by confining himself entirely to a single case would be depriving the public of his services for the time being, more so if he is a specialist, in which case his services might be valuable for another patient to save his or her life. Hence he thinks that hospitals, private clinics, and nursing homes with resident doctors are the most suitable places for such cases. If however a case of this nature is conducted in a private house there must be a competent qualified assistant especially trained for this purpose to help the attending physician. The administration of the drugs should not be left in the hands of a nurse whose indiscriminate use of them or unintelligent application of them according to the routine charts might cause serious consequences. He always injects the drugs himself in his own cases.

Under these conditions he believes we have a method which without appreciable influence on the labor or without danger to the mother or harm to the child does away with the apperception of pain during childbirth either entirely or to a very large degree.

A woman has certainly a right to demand from her physician alleviation of her pain, and there is no reason why we should not follow the via media between the two extremes and use the drugs scopolamine and morphine at their true pharmacological value, if the occasion arises.

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### End Results of Tonsillectomy.

In the *Archives of Pediatrics* for December, 1920, VIETOR concludes:

1. Tonsillectomy and adenoidectomy in well-chosen cases, performed by general surgeons, in a general service, under proper conditions, show 97 per cent symptomatically good results.

2. The complications arising either early or late are few and not severe in character.

3. The benefits arising both in simple cases and those in which tonsils act as a portal of entry warrant their removal.

4. The dangers of the operation are almost *nil*, as shown by the fact that there were no deaths due directly or indirectly to the operation in this series of 500 consecutive cases.

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### Sodium Bicarbonate Tolerance in the Toxemias of Pregnancy.

In the *Lancet* of December 18, 1920, WHITE states that Sellards concluded that a tolerance of over 10 grm. of sodium bicarbonate without the urine becoming alkaline forms a test for the presence of acidosis, which he defines as "an impoverishment of the blood and other tissues in fixed bases or in substance which readily give rise to fixed bases." To see the clinical value of this test it is useful to enumerate the methods by which the existence of acidosis has been demonstrated. These may be divided into laboratory tests and clinical methods.

1. *Examination of alveolar air for lowering of $CO_2$ tension*: This is not especially difficult with the proper apparatus, but the tension is also lowered in cardiac and pulmonary diseases.

2. (*a*) *Examination of the blood for lowered $CO_2$ tension*: This gives practically the same result as "1," but is more difficult. (*b*) *Examination of the blood for lowered alkalinity*: (1) By titration with phenolphthalein after removal of the protein; (2) physicochemically by measuring the increase of the hydrogen-ion content. Neither of these methods is really satisfactory, as the blood reaction is kept nearly constant at the expense of the reserve of alkalies, and no change in the hydrogen-ion content is demonstrable till the patient is moribund.

3. *Examination of the urine*: (*a*) For excess of Na, K, Ca, and Mg salts of the normal and abnormal acids; (*b*) for other changes in the fixed bases; and (*c*) for increase in ammonia. All these involve chemical analysis and are not wholly reliable; for example, increase in ammonia

occurs in cases of faulty protein metabolism and acetone, etc., in simple starvation.

1. *As to clinical methods:* Dyspnea characterized by deep respiration with prolonged expiration without cyanosis. This is only seen in very advanced cases.

2. The presence of a fruity smell in the patient's breath. This is chiefly noted in cases of faulty carbohydrate metabolism.

3. Increased tolerance to sodium bicarbonate.

Of the above six laboratory and clinical methods it seems that the bicarbonate test is demonstrable earlier than even the alveolar-air test and much sooner than the others become positive. Hence it appears that by the simple process of bicarbonate feeding we are able to prove the presence of acidosis sooner and more surely than by the most elaborate physicochemical methods of the laboratory.

The question now arises as to how far the above facts—that is, bicarbonate treatment of and test for pregnancy toxemia—can be usefully applied to the conditions that come before us in connection with the toxemias of pregnancy. Sellards appears to have paid but little attention to such cases; he worked almost entirely on nephritis and diabetes. As pregnancy toxemias are commonly associated with more or less marked nephritis, it is important to note that uncomplicated cases of parenchymatous nephritis usually have a bicarbonate tolerance of under 10 grm. Therefore, from a rough clinical point of view, it may be taken that, in a case of pregnancy toxemia with a large bicarbonate tolerance, less than 10 grm. need be deducted as possibly due to the nephritis, and the rest will represent about the measure of the acidosis due to coexisting lesions.

White has been interested in the subject of sodium bicarbonate in acidosis since the recovery of a patient apparently in diabetic coma, after an intravenous injection of a solution containing 20 drachms of bicarbonate. Subsequently he has used it in most forms of toxemia of pregnancy as a method of treatment, but it is only in the last year that he has employed Sellards's method as a means of diagnosis and prognosis. The crude simplicity of the method is so extreme that one instinctively feels that there must be something wrong with it; but so far as his experience goes it has apparenly been a valuable guide. The patient is given measured quantities of sodium bicarbonate at fixed intervals, and her urine tested by litmus paper before each dose is given. The amount given when the litmus is first turned blue is noted, and further doses stopped till the urine is again acid. If there is ammoniacal cystitis the urine should be boiled in a test-tube to drive off ammonia before testing, or, less accurately, the litmus paper itself may be heated. He has found it safer to order the soda in drachm doses (as nurses are liable to make mistakes when working in grammes), and he has usually given one drachm in water every three or four hours. No complaint of gastric disturbance has been made. Some 50 toxemic cases of various kinds have had their tolerance so tried.

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### Protozoal Dysentery and Benzyl Benzoate.

HAUGHWOUT, in the *Philippine Journal of Science* for June, 1920, which has just appeared, in summarizing his article on this subject states that a case of acute balantidiosis, complicated by infections with hookworm and trichuris, was treated with benzyl benzoate.

At the time treatment was started, twenty-three days after the onset of the disease, the patient was exhausted and apparently near to death.

The abdominal pain and tenesmus, associated with the dysenteric process, disappeared within twenty-four hours after treatment was started and did not return again, even after treatment was stopped twenty-four days later.

The parasites showed a tendency to diminish in numbers in the feces until the eighth day following the institution of treatment, when they suddenly appeared in the stool in immense numbers. On this

day the stool was feculent, but contained mucus. No demonstrable tissue elements were found. He is inclined to regard this as the expression of a wholesale exodus of the ciliates from the tissues.

He believes that, had the patient not been under treatment, this "swarming" of the parasites would have been accompanied by pain, tenesmus, and the other symptoms constituting the dysenteric complex.

That the patient did not exhibit the symptoms that ordinarily accompany the departure of such large numbers of parasites from the tissues is, he believes, largely due to the selective action of benzyl benzoate. This drug, as Macht has shown, acts in a manner similar to papaverine, in that it tends to inhibit peristalsis of smooth muscle organs, and lowers their tonicity and relaxes their spasm.

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### The Food Requirements of Children.

In the *American Journal of Diseases of Children* for January, 1921, HOLT and FALES, in summarizing their article on this subject, state:

1. In calculating the total caloric requirements of children there must be considered separately the component parts of which the total is made up. These are the requirements for basal metabolism, for growth, for muscular activity, and the food values lost in the excreta.

2. The basal requirements, which have been determined by Benedict and Tablot, are highest per kilo at about nine months and steadily fall from this time up to adult life.

3. The food value normally lost in the excreta is a nearly uniform proportion of the intake, about 10 per cent, for all ages after infancy.

4. The requirements for growth are greatest during the period when growth is most active, namely, during the first year of life and during adolesence. They are nearly uniform from the fourth to the tenth or eleventh years.

5. The average for three factors—basal, growth requirements, and food values lost in excreta—are nearly uniform for children of the same weight living under similar conditions.

6. The requirement for activity is the only factor which varies widely with different individuals.

7. The great differences in the calculations of different writers who have estimated theoretical values for total calories per kilo for children are in part due to the fact that they have not sufficiently considered the different component parts which make up the total.

8. The average caloric requirement of children according to their observations is about 100 calories per kilo at an age of one year (about 9.5 kilos). For boys it falls to about 80 calories at six years (about 20 kilos) and remains practically constant at this value up to the age of fifteen years, the increasing requirements for activity being met by the reduction in basal requirements per kilo. After a weight of 50 kilos (about fifteen years) is reached the calories per kilo can rapidly be reduced to adult standards, about 48 calories per kilo. The requirement for girls falls to 76 calories per kilo at six years (about 20 kilos), and continues at this value until the tenth year. During the tenth year it rises because the basal requirement is nearly constant while there is an increase in needs for growth and activity. The requirement remains at 80 calories per kilo until growth is complete, then falls rapidly to adult standards, about 44 calories per kilo.

9. In their calculation they have allowed a much higher value for calories per kilo during adolescence than have others. This seems to be absolutely essential, because of the increased growth needs at this time and the large requirement for muscular activity.

10. According to their allowance the total daily caloric requirement of children of both sexes during adolescence exceeds by nearly 1000 calories the requirements of the adult man or woman of moderate activity.

11. Children who are under weight require more calories per kilo than those who are of average weight for their age. Chil-

dren who are over weight require fewer calories per kilo than those of average weight.

12. The schedule here proposed is a tentative one and is based on present knowledge, which is in many respects incomplete. There are a number of points which must be studied more fully before definite standards can be established.

For the many reasons which they have discussed, it seems the right procedure to allow for children during the period of adolescence more calories than the adult ration, and, as growth needs end, to diminish the caloric allowance to the adult standard. They quite agree with Benedict's recent statement, "It is still, however, the best practice to give a most liberal diet to children, since the greater part of the evidence on under weight indicates that children usually receive too little rather than too much food."

# Surgical and Genito-Urinary Therapeutics

### Crucial Points in Surgery of the Gall-bladder and Ducts.

CRILE *(New York State Journal of Medicine,* October, 1920), basing his paper on an experience of 1325 operations, observes that the minimizing risk due to pathologic hemorrhage is readily met, for it is almost specifically controlled by the transfusion of blood.

As a rule the best exposure in common duct operations is secured, not by a vertical incision, but by an incision that parallels the costal border dividing the muscles obliquely. This gives a direct and wide exposure of the liver, gall-bladder, and ducts; moreover, it has one of the advantages of Mayo's transverse incision in ventral hernia, *i.e.,* it does not divide so many nerve fibers, and it provides a greater security against postoperative hernia.

Of prime importance is the length of the incision. The incision must be sufficient to secure an absolute and adequate exposure of the operative field.

In cholecystostomy there is no special problem in drainage; but in cholecystectomy the method and position of drainage is open to question. It is an axiom that the best drainage is dependent drainage, which is frequently best secured through a counter incision at the bottom of Morrison's pouch. In fact, in cholecystectomy, the question of drainage is paramount, for if it is not adequate a subphrenic abscess may be established. If adequate dependent drainage is not established through Morrison's pouch, then it must be ample through the abdominal incision, so that by no chance will there be an accumulation of fluid at any one point which may be dispersed by the respiratory movements. In fulminant cases of cholecystitis, the only immediate procedure as a rule should be the establishment of gall-bladder drainage. It is very desirable to carry the acute gall-bladder over to the subacute stage before the final operation. After the acute symptoms have subsided and the temperature has remained normal for a period and the patient's general condition has become stabilized, then a cholecystectomy may be performed.

In the preliminary operation in a grave risk, the adhesions should be separated only sufficiently to meet the absolute requirements of drainage. In these fulminant cases as soon as the gall-bladder is opened a tube is inserted and nothing more is done surgically. Around this tube a quantity of iodoform gauze, well wrung out, is lightly packed, and beyond this an abundance of gauze is inserted around all the sides of the short abdominal incision. No stitches are used provided the incision is short and the gauze packing adequate.

After the removal of a stone from the common duct, provided bile drainage through the ampulla or the gall-bladder is assured, the entire duct lumen may be

closed with fine chromic gut, just as wounds of the intestine are closed.

On the other hand, drainage of the common duct is required:

If there has been a stone in the ampulla; if the duct mucosa has been so injured as to cause hemorrhage; if there is a probability of postoperative closure of the duct by swelling.

In cases in which drainage of the duct is not required and the duct is sutured, a drain is placed near, but not against, the line of suture.

An examination of the postoperative course of any series in which drainage alone is used routinely in all gall-bladders, irrespective of the condition of the gall-bladder and the cystic duct, will show in some cases a temporary quiescent period followed by fever and pain, and a sense of pressure and burning in the scar, which has reddened, become swollen and tender, and finally opened to allow the escape of muco-pus or bile or both. The symptoms then disappear and the wound closes, but the same cycle tends to reappear after a longer or shorter period.

It does not satisfy or content the victim of this cyclic gall-bladder to assure him that this is a safety-valve, that little or no danger attends it, and that some day it may get well.

Such cases present to us the following definite clinical problems: Can it be determined at the time of operation whether a given case will eventuate in this malevolent cycle? Is cholecystectomy followed by any unfavorable after-effects? Will the mortality rate of cholecystectomy be greater than that of cholecstostomy in the cases that will be followed by the cycle of cholecystitis, eruption, quiescence?

From the local conditions one can with accuracy forecast the clinical behavior of the gall-bladder and the cystic duct. We are bound to admit that the gall-bladder has a function; and that in the absence of the gall-bladder the common duct is dilated; that a dilated common duct partly compensates for the absence of the gall-bladder by storing bile; and that the abnormal storage of bile in the common duct predisposes somewhat to the formation of stone in the common duct.

Experience has taught that if the mucous membrane of the gall-bladder is gangrenous; if there is chronic infection of the gall-bladder; if there is a stone embedded in the cystic duct; if the wall of the cystic duct is thickened; if the wall of the gall-bladder is thickened by scar tissue as a reaction to infection—then mere drainage of the gall-bladder, usually though by no means always, will be followed by recurrent obstruction and infection, and in these cases cholecystectomy is recommended. On the other hand, if the gall-bladder has approximately normal walls, and if the cystic duct is approximately normal, then no matter what the size or the number of stones, if the operation is performed with due care there will be rarely if ever a postoperative pathologic cycle.

In cholecystectomy the following points may be emphasized: The gall-bladder should be exposed by an ample incision so that there is free access to the base of the gall-bladder; the freeing and separation of tissue should be made by sharp dissection, care being taken not to injure the liver even slightly, so that oozing of blood and bile as well as infection may be avoided. The entire gall-bladder should be freed from its attachment so that ample opportunity may be given for determining the exact place at which the gall-bladder ends and the cystic duct begins, the division being made just proximal to this point. The cystic artery should be isolated and tied separately.

It is well to emphasize further the necessity of most careful determination of the exact point at which the division should be made between the gall-bladder and the cystic duct.

The clinical results of cholecystectomy in many cases of pathologic gall-bladder are clinically as much better than cholecystostomy as nephrectomy of a pus-riddled kidney is better than a nephrotomy. The convalescence after cholecystectomy is usually as uneventful as is convalescence

after a salpingectomy for chronic suppuration.

The magnesium sulphate test is based on the fact that contact of the duodenal mucosa with a partly saturated solution of magnesium sulphate causes a relaxation of the sphincter of Oddi, and the subsequent discharge of sharply differentiated types of bile, always three in number in normal cases, which are believed to come in successive stages from the common duct, the gall-bladder, and the liver itself.

The technique is as follows: The patient is given a duodenal tube to swallow and the stomach contents are aspirated for a routine examination. When this is done, the patient is turned on the right side, and a pillow placed under the hips. He is then instructed to massage the epigastric region from the left to the right until further instructions are given. To relax the pyloric sphincter and thus facilitate entrance to the duodenum, benzyl benzoate is given immediately after the tube is swallowed.

When it is ascertained that the duodenum has been reached, usually in from three-quarters of an hour to an hour, a solution of 60 Cc. of a 25-per-cent solution of magnesium sulphate is injected through the tube into the duodenum. The tube is then clamped, and after three or four minutes preparation is made to collect the specimens of bile. On removing the clamp from the tube a flow of fluid is expected, usually with no preparatory aspiration. This back flow consists of a drip or return of part of the magnesium sulphate injected into the duodenum. This changes to the "common-duct phase"—bile of the consistency of a thin syrup. After 5 to 10 Cc. of bile of this consistency have been cleared a definite change is noted, which indicates the "gall-bladder phase"—bile of a thicker, more ropy consistency, and of a dark color, the amount of which may vary from 25 to 100 Cc. The character again changes to the "liver phase"—in which the bile is of a lighter, straw color, and much more fluid in consistency. These changes are quite definite and abrupt.

Regarding the application of the test Crile states that the duodenal contents are normally clear and faintly bile tinged. A cloudy fluid from the duodenum means nothing if it is intermittently cloudy or acid, or if upon microscopical examination it is found to contain stomach elements. When the gall-bladder phase is absent obstruction of the cystic duct is suggested. Usually the bile from the normal gall-bladder is prompt in making its appearance, coming in from two to six minutes after the injection of the magnesium sulphate solution. In eight cases the diagnosis of obstruction of the cystic duct previous to operation has been made by the magnesium sulphate test. These cases all showed an obstruction of the cystic duct at the time of operation.

As to death from "liver shock" following operation the common causes of this condition are ether anesthesia, suboxidation from deep and prolonged anesthesia, trauma, and low blood-pressure. The use of a local anesthetic coupled with light gas and oxygen anesthesia, minimum trauma, secured by an ample incision, by sharp knife dissection, and by as brief an operation as is consistent with good surgery, blood transfusion if the blood-pressure is low, and morphine in case of pain, obviate or minimize these causes. In addition the activity of the liver cells is increased by the application of local heat, and by abundant water—to this end large hot packs are used and adequate water equilibrium is established before and immediately after operation and are continued through the acute postoperative phase.

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### Hidden Sepsis.

ROBERTSON (*Lancet*, Nov. 20, 1920) states that we must think of hidden sepsis as the unknown determinative agent or symptom whose urgency or intractability affords no obvious clue to the exact nature of the underlying chief factors. And this because, until our examination has revealed the specific nature, source, and site of the infection, we cannot tell whether it will prove to be, on the one hand, a successful

attack by bacteria or mycelial or protozoal agencies, or, on the other, a breakdown in the natural defences against any infective agent whatsoever. Thus the conception of sepsis.

In any case our first duty as physicians must be the making of a searching physical and clinical examination of the patient himself. We must inquire very closely into his family history, his past and present environment, his conditions and habits of life, and his present symptoms and other evidences of ill-health; and, gleaning from these the multiple evidences whose value we shall have to assess as factors of the problems we are set to solve, we must bring further light to bear upon the case through those methods of laboratory research which are now within our knowledge and reach.

Apart from epidemics, no infection, however acute, or however chronic, can be adequately appreciated apart from the general standard of native resistance in the patient, since no two of us start on the long journey of life with the same heritage of immunity, and we do not equally conserve the capital with which we set forth. No physician of experience will deny the influence of soil poverty on the profusion of the weeds and briars we are accustomed to call simple ailments.

It is our common experience that at the bedside we are frequently in doubt as to the true nature of an acute or chronic infection. Again using the word in its broadest sense, it may be that we are called upon to classify a sharp pyrexial attack which, at any rate in its earlier stages, may suggest to us such widely differing conditions as pneumonia, typhoid, or cerebrospinal fever. The physical and clinical evidence at the bedside may have given us no guidance, and we are driven to adopt laboratory methods to assist us in arriving at a conclusion which must, from the first, determine our own line of action, and to some extent the prospects of recovery for the patient. Mere expectant treatment may well prove a fatal choice, and to-day more is expected of us in rapid and accurate diagnostic facility, and rightly so. Or, again, it may happen that, in spite of long expectancy, the true nature of a continued fever remains still obscure. How shall we then in any case of this nature begin to avail ourselves of laboratory methods of diagnosis? Perhaps our first examination will be that of the blood cells, and from this we may certainly hope rapidly and definitely to reduce the number of probabilities. For, as in the first case suggested, we shall find that in an early stage of one of the enteric group of fevers there is a definite leucopenia at the expense of the polymorph cells, whereas in a typical croupous pneumonia, and in cerebrospinal fever, there is an equally definite leucocytosis, in which the polymorphs reach a characteristic and high percentage—88, 92, or even more. The leucocytosis of such a pneumonia does not often rule higher than 16,000 to 18,000 cells per c.mm., while that of cerebrospinal fever may reach a figure almost twice as high.

In the second group of more chronic continued fevers we are, as a rule, in the presence of one of three dominant infections, and it becomes a question whether we are dealing with one of the coli-typhoid group, with a chronic streptococcal infection, or with, what is so often called in the absence of the tubercle bacillus itself, "latent tuberculosis." Now there are three useful guides in such a case which will together point to the presence of any particular one of these. If the case be one of enterocoli infection we shall find in the urine unmistakable evidence of intestinal putrefaction of protein. This can be recognized in the presence of end-products of the amino-acid derivatives, such as indican, indol, and tyramine, and of the purin bodies in the xanthoproteic reaction. The diazo-reaction will be positive. The type of anemia found in the blood picture will also be characteristic, since in the constipational stages there is the usual leucopenia with relative lymphocyte increase, a primary reduction of the hemoglobin followed later by a reduction of the total red cells, and a progressive if slight drift to the left in the Arneth index.

Even at this stage the large mononuclear percentage is increased. The temperature chart shows a very characteristic morning reading, just below or just above 97° F. The feces in the Gram-stained smear do not show any marked increase of Gram-positive elements. The blood-pressure is low.

Contrast with this the blood picture in chronic streptococcal infection. This, except in the case of an occasional markedly hemolytic strain, shows a tendency to a high reading of the hemoglobin and color-index, and the leucocytes are normal in number, or reach perhaps 9000 to 10,000 per c.mm. The Arneth index is normal, for the toxin does not appear to inhibit but rather to stimulate the production of polymorph cells. The invasion of the submucosal tissues of the colon gives rise to a characteristic antisepsis response on the part of the large mononuclears, and those are generally found to be not less than 10, and frequently as high as 16 and even 19 per cent in the differential count. The temperature chart shows a more wave-like tendency as the exacerbations develop, but on the whole the morning-evening variation is not more pronounced than in the typho-coli group just described. There are, however, two points in the chart which should immediately challenge attention. These are, first, in the typho-coli group the pulse-rate is not markedly accelerated—*i.e.*, it rarely exceeds 90—whereas in the chronic streptococcal infections it is rarely below 90 in the morning and generally reaches 100 to 105 in the evening; secondly, in the typho-coli group the morning temperature is generally below or just above the 97° line; in the streptococcal group it is rare to find a single record below 98°.

The blood-pressure is also higher and generally registers, in young adults with streptococcal infection, 140 mm. or more.

Clinically, it is generally easy to separate these two infections. With the coli group one learns to associate the muddy skin and the pigmentation, which are eloquent of the toxic involvement of the suprarenal glands. There are chilliness, coldness of extremities, habitual constipation, furred tongue, and the many other common stigmata of adrenal and thyroid inadequacy.

With chronic streptococcal infection we have the clear pink-and-white complexion, the mental and psychical acuteness and hopefulness, which contrast so strongly with the depression and fatigue of the other. This has often misled the examiner to a conviction that he is dealing with a case of latent tuberculosis; but tubercle does not account for the repeated sore throats, the periarticular and aponeurotic expansion fibrositis, and the neuritis and marked dysmenorrhea, which are such constant finds in the subjects of chronic streptococcal dissemination.

This brings us to a consideration of chronic tuberculous infection, which the author has for a good many years held to be a secondary infection of low intrinsic value, parasitic in its nature, which can, apart only from actual inoculation, obtain and maintain a footing in tissues already chronically intoxicated and reduced as regards their naturally high immunity to it by one or other of the three great master toxins. These are: chronic intestinal stasis, malaria, and syphilis, although shock, chronic alcoholism, and certain other markedly neurodepressant agencies may act in the same way. The great master toxin in tubercle is to be recognized in the chronic coli infections met with in intestinal stasis. We shall never successfully root out tuberculosis from the individual or from the community until we have first of all eliminated the prime toxic influence.

When the blood picture in the coli infections of chronic stasis shows a marked reduction of both hemoglobin and total red cells, concurrently with a marked drift to the left of the Arneth index beyond the usual limit reached in simple coli intoxication, we have a right to assume that the advent of tubercle is either imminent or an accomplished fact. How great is the subverting influence of this chronic coliform intoxication is illustrated daily in our experience when we find in just this class of cases infection by staphylococci, which,

in defiance of our efforts with vaccines and colloidal therapy, refuses to clear up, so that patients are known to us all who have suffered from boils more or less constantly and severely for years. In three cases—one of "golf elbow," one of chronic iridocyclitis with obscured vision, and one of recurring fluid in the knee-joint, thought to be tuberculous—the author has been able to demonstrate in the urine and in the flora of the upper colonic area streptococcal organisms from which vaccines were prepared, with in each case resulting disappearance of the symptoms.

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### Umbilical and Ventral Hernia.

WARREN (*Lancet*, Nov. 20, 1920) states that hernial protrusions through the abdominal wall other than through the inguinal and femoral rings fall into two main groups of prime importance: (1) umbilical hernia of adults; and (2) ventral, incisional, or postoperative hernia. Of these two classes together the author has operated on 84 during the past ten years. The other types of ventral hernia from their relative infrequency form a far less important group, viz.: (*a*) fatty hernia of the linea alba; (*b*) exomphalos of the newly born; (*c*) umbilical hernia of infants and small children, due to stretching of the umbilical cicatrix.

Forty-nine adult umbilical hernias were operated upon, with a 25-per-cent mortality in the strangulated cases, and 33 per cent when gangrene was present. This mortality was due to delay in adopting operative procedure.

As far as suturing the hernial orifice is concerned, this is based on the plan of Mayo, the underlying principle of which is the fact that the oblique and transverse abdominal muscles are inserted into the linea alba, and when they contract tend to pull the latter apart. The result of this is that if an aperture in the linea alba be closed vertically the effect of coughing and straining is to pull the hole open, while if the latter be closed transversely the resultant pull of the oblique and transverse muscles pulls the sides of the opening closer together and makes it more slit-like than before. Another important point is to commence the operation as if with the object of cutting the hernia right off, not of opening it; that is to say, one aims to open the hernia at its neck, close to the exit of the latter from the abdominal wall, because here there are seldom any adhesions and the interior of the sac is easily attained. To cut down on the fundus of the sac is sheer waste of time; the surgeon is apt to find difficulty in opening the sac, and to get badly confused with adherent omentum and bowel. A great part of these hernias, consisting of omentum, sac wall, and a goodly flitch of overlying fat around the hernial protrusion, can be and should be cut off.

A large ellipse with pointed ends, which extends some inches beyond the hernia on either side, in the case of large hernias well out on the flanks, is marked out and carried down to the abdominal wall—*i.e.*, to the rectus sheath and aponeurosis till the neck of hernia is reached. Plenty of aponeurosis should be stripped bare of fat, so that when the layers of rectus sheath are overlapped transversely a good firm union is obtained, which would not be the case if any fat were left to intervene. The tissues forming the neck of the sac are divided carefully into the cavity of the sac all round, flush with the abdominal wall.

When the neck has been divided all round we can pull to one side the whole hernial mass still adherent to the interior of the abdomen by the gut and omentum which enter it. The opening of the hernia into the abdominal cavity is blocked with a pad of gauze, in case there is infective fluid in the sac (as in cases in which the gut is gangrenous), which might flow back into the abdominal cavity with disastrous results. We can now deal with the hernia fairly easily; the sac is opened from the neck toward the fundus, and the gut freed and returned if viable. It is generally pretty obvious at this point if the contents of the sac are gangrenous, in which case we apply intestinal clamps to the pedicle

of the mass (consisting of gut and omentum) and cut the gangrenous mass away *en bloc*. It is well to place crushing-clamps on to the omentum distal to the intestinal clamp to prevent its slipping back through the latter and causing serious hemorrhage. The cut ends of intestine are anastomosed (preferably by the end-to-end method), the vessels in the cut omentum carefully tied off, and both returned to the abdomen. The above description applies especially to the strangulated forms, but can equally well be used in quiescent hernias. In most instances the small intestine can be freed easily and returned unless gangrenous. The transverse colon, drawn into the sac by the exuding and adherent omentum, may present more difficulty. To deal satisfactorily with the omentum the finger is run round the margin of the hernial aperture inside the abdomen, and the omentum pulled down to where it is quite free from adhesions to the sac or abdominal wall and is tied off in fairly large masses. Interlocking ligatures are not needed if care be taken to include all the larger vessels in the ligatures and to cut off the omentum at least an inch beyond the ligatures to prevent its slipping through.

Two to four mattress sutures are introduced into the lower edge of the aperture in the linea alba and their free ends passed from behind forward through the upper border of the aperture 2 inches from its edge. When all the mattress sutures have been introduced they are pulled tight and tied on the outside, thus causing the lower edge to overlap the upper edge internally by two inches. The free edge of the upper margin is then sutured to the aponeurosis, two inches below the edge of the lower margin, rendering clear the necessity for widely removing fat around the neck of the sac. The skin is drawn together with a few interrupted sutures passing deeply to obliterate the dead space which otherwise would occur in fat subjects, and the superficies closed with a continuous suture. On one occasion the hernia was so large that it was only with considerable difficulty that the last two feet of intestine were induced to retire within the abdomen; the patient after operation had a very severe attack of bronchitis lasting several days, but without effect on the operation scar. These facts speak for the efficiency of the transverse closure.

Seven cases could be traced; of these three were alive and without recurrence two, three, and five years respectively after operation. One case died six months after operation, the cause being uncertain. Two cases died of bronchitis five and seven years after operation without recurrence, aged respectively 59 and 76. One case showed a small bulge in the scar five years after operation. Considering the age and condition of these patients, we can expect as a rule quite satisfactory results and absence of recurrence for a number of years.

In the group of postoperative or incisional hernias were 35 cases, 13 following appendectomy through a gridiron (muscle-splitting) incision; 22 were sequelæ to median or paramedian laparotomy. In each group was one herniotomy for strangulation, and in the whole group there was but one excision of intestine, not for gangrene, but for extensive matting and kinking in the scar. The average age was 35 and there was no mortality; the cases in this group are obviously of a less severe type than are those of the last discussed.

For middle-line hernias the Mayo method was employed whenever possible — *i.e.*, where the opening in the abdominal wall was fairly circular; when the opening was elongate in the long axis of the abdomen, the edges were freed, the rectus sheath dissected up widely, and suturing with overlap practiced; sometimes a filigree was inserted. Where the hernia was through a gridiron appendectomy wound the edges of the various layers of aponeurosis and muscle were exposed by a free dissection and the abdominal wall reconstituted in its normal state, usually with some overlapping of the external oblique aponeurosis. The main point in the technique is to dissect very widely from the hernial orifice, so that the muscular and fascial layers are all well recognized and thoroughly exposed in the whole extent of the hernia. To do this will often require a 6- to 8-inch incision and the

stripping back of skin and fat for several inches.

Seventeen cases were traced. Of these, seven followed median and paramedian laparotomy; all were in good condition, two after two years, two after six, two after seven, and one after eight years respectively. The only poor results in this group were those in which the hernia had followed the low right rectus incision done by other surgeons for appendicectomy. Of these there were two cases, both with a large bulge in the scar after four and five years respectively. Of seven cases arising after the gridiron incision for appendectomy five were perfect, one five, one six, and three seven years after operation. Two cases showed a slight bulge or very small central aperture five years after operation. These cases, though rather few in number, have some bearing on two rather interesting questions: (*a*) The relative merits of the gridiron and the low right rectus incision with the rectus displaced inward (Battle incision); (*b*) the use of silver-wire filigree.

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### Modern Treatment of Syphilis of the Nervous System.

MEHRTENS (*California State Journal of Medicine*, November, 1920) calls attention to the fact that irritation, no matter of what nature, whether by the individual's own serum, true inflammation, or even in a less degree by lumbar puncture, all tend to lower the barrier between blood and spinal fluid. Sodium iodide which normally cannot be caused to pass the choroid plexus, even by intravenous injection of two hundred grains, can readily be made to do so following a preliminary injection of blood serum.

Reiger and Solomon found that salvarsan injected intravenously appeared in the spinal fluid in 30 per cent of the cases.

The author notes that about 40 per cent of his cases of cerebrospinal syphilis improved markedly, subjectively, serologically, and in the increased capacity for work, under intravenous and intramuscular treatment. It seems, then, safe to assume that permeability of the choroid plexus to antiluetic drugs occurs naturally in certain individuals, and for these cases the intravenous and intramuscular treatments are quite satisfactory.

Mehrtens irritated the meninges of 100 patients with their own blood serum. After an interval of six hours 0.6 gramme of arsphenamine was given intravenously. The amount of arsenic in the spinal fluid was estimated. The results show that arsphenamine given intravenously penetrates the meninges in 40 per cent of cases. Complete drainage of the spinal fluid did not increase the number of penetrations. Preliminary irritation of the meninges caused intravenous arsphenamine to penetrate in 90 per cent of cases and in three times as strong a concentration.

On the basis of these results the author has applied this treatment to one hundred and fifty cases of syphilis of the central nervous system. The results are slightly more satisfactory than in Swift-Ellis' or Byrnes' treatments in the amelioration of clinical symptoms, clearing up of the serological findings, and freedom from relapses or complications. The treatment should only be made in the 60 per cent of cases in which the membranes are impracticable, and even in these there may be certain contraindications. Even drainage causes some meningeal irritation, as well as some vasomotor dilatation, as indicated by the pleocytosis of ten cells following the puncture.

Every one working with cerebrospinal syphilis has noted cases which as results of previous treatments, or because of naturally fine veins, present an impossible subject for further intravenous treatments. The rectal administration of arsphenamine has been used clinically for some time. The dose is relatively small, and while traces of arsenic were found in the blood and urine, a constitutional effect was not achieved. By gradually increasing the dose the author is now using 0.4 gramme of neoarsphenamine in the thoroughly irrigated rectum. He has traced it through the blood and into the

spinal fluid when the meninges were irritated. The usefulness of this method is obvious, and the author hopes to report a type of case in which this is the treatment of choice even with intact veins.

The clinical results of 1500 treatments for syphilis of the central nervous system, given in the last three years in the neurological service of Stanford University Medical School, have brought out the following facts:

To get the maximum results, each case must be treated according to individual requirements—there can be no rigid routine treatment.

There is no greater danger in treating syphilis of the central nervous system than there is in treating visceral lues when a proper technique is developed.

Cerebrospinal syphilis (meningeal type) was arrested in 80 per cent of cases; intramuscular and intravenous therapy were sufficient in about 40 per cent. Of the remainder 35 per cent were benefited by intraspinous therapy, and 15 per cent were improved somewhat but not arrested. About 5 per cent of cases diagnosed cerebrospinal lues developed paretic symptoms. Headaches cleared up in 90 per cent of instances—generally after one or two intraspinous treatments.

Tabes—early cases—nearly all did well clinically. Some lightning pains recurred from time to time.

Later tabes showed marked improvement in about 60 per cent, but there was no evidence to show returning function of reflexes—pupilary reaction or Romberg sign. There was sufficient improvement to send most of this class back to work.

In paresis the results were poor. A few cases went into remissions, but ultimately deteriorated and had to be committed. Several cases so diagnosed cleared up permanently, but this unusual result tended to make the author doubt the original diagnosis. It does not emphasize the benefit for a doubtful case of paresis.

It may be said that our present methods of treating neurosyphilis are by no means so successful as we would like to make them. Certainly the last word has yet to be said, particularly in the development of the intradural methods. Even so, we can feel that our present methods enable us to arrest cases intractable to the older ways and give us hope that the future will evolve methods which, used in time, will arrest a large majority of cases of neurosyphilis.

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## The Early Diagnosis of Carcinoma of the Oral and Laryngeal Pharynx.

DAVID *(Journal of Laryngology, Rhinology, and Otology*, November, 1920), after emphasizing the importance of the earliest possible diagnosis of carcinoma of the pharynx in order that the tumor may be successfully treated by excision, observes that there are three types frequently seen by the laryngologist, namely, carcinoma of the region of the base of the tongue and epiglottis; carcinoma of the pyriform sinus; epithelioma of the postcricoid region.

His fourteen cases of carcinoma of the base of the tongue and epiglottis with one exception all occurred in men. In spite of the accessible position the growth had not been diagnosed until inoperable, and in three cases the symptoms were attributed to neurasthenia. In others the patients reported with a mass of malignant glands at the angle of the jaw and were sent to the laryngologist for a search for the primary growth. Such cases have been observed to commence as a small ulcer at three definite situations: the junction of the anterior pillar of the fauces and the tongue; immediately below the tonsil at the junction of the lateral wall of the pharynx and the tongue; in the vallecula, either on the base of the tongue or on the anterior surface of the epiglottis.

The early symptoms are persistent severe pain on swallowing, located by the patient at the root of the tongue, with blood-stained, frothy expectoration and slight enlargement of the deep cervical gland or glands at the angle of the jaw. Occasionally a chronic paroxysmal cough is the first symptom. Later the movement of the

tongue becomes limited, as shown by incomplete and painful protrusion of this organ to one side, and this incomplete protrusion with the accompanying trismus impedes laryngoscopic examinations.

The growth was inoperable when first seen, in spite of the fact that it is within easy reach of the palpating finger, and does not require a skilled laryngologist or endoscopist to detect.

There were 31 cases of pyriform sinus carcinoma, all in men. The growth commenced in the majority of cases as an ulcer on the arytenoepiglottidean fold, or in others on the floor of the fossa, and sometimes even lower, on one side of the posterior surface of the cricoid, and crept upward to the pyriform sinus, involving the same side of the larynx, with fixation of the vocal cord and the characteristic edema of the false cord in that half of the larynx. In late cases the base of the tongue and epiglottis are involved, and by downward extension the lumen of the pharynx is surrounded. The first symptoms are sore throat, followed by characteristic hoarseness or roughness of the voice, with a copious frothy, blood-stained expectoration. The deep cervical glands are soon enlarged and the neighboring tissues of the neck are infiltrated. This type of case is usually inoperable at the first inspection, and any attempt at removal means a laryngectomy with excision of a large area of the pharynx.

Of the post-cricoid carcinomata there were 24 cases, 22 women and two men. This is frequently a slow-growing, superficial tumor which appears to commence on the lower portion of the posterior surface of the cricoid cartilage and well below the area seen in an ordinary laryngoscopic examination. These growths also commence in the posterior pharyngeal wall at the level of the cricoid or a little higher. In this position they are more easily seen.

These patients first complain of soreness or pricking sensation with radiating pain in the ears during swallowing. Pressure of the larynx backward against the spine or lateral movement produces pain in practically all cases. Dysphagia appears early, and when these symptoms are present without satisfactory explanation the patient should be examined by suspension laryngoscopy or by the esophagoscope. The laryngoscopic mirror will not show any signs in the early stage. When the upper edge of the growth is visible the disease is advanced. Matters are still more hopeless when the vocal cord is paralyzed. Neither is the growth within reach of the longest finger, and the passage of a bougie is valueless and even harmful. In the absence of physical signs the dangerous diagnosis of neurasthenia is still made, but such a diagnosis should never be concluded until the presence of a growth has been eliminated by direct examination.

The majority of the cases of carcinoma observed were associated with septic teeth. The removal of the septic teeth was not only a preparation for operation, but improved the patient's condition. Of the cases of post-cricoid growth, 24 in number, five were subjected to operation, but all were dead at the end of a year—two of them a few days after operation. The tumor is often superficial and of slow growth. Metastases are late.

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### The Treatment of Abortion.

HILLIS (*Surgery, Gynecology and Obstetrics*, December, 1920) observes that from the earliest times there has been a difference of opinion between those who advise expectant conservative care and those who insist on operative interference. In the treatment of infection of the uterus after labor at term, there has been a decided trend toward conservatism. Each puerpera who has died as a result of vaporization, the use of sharp and dull curette and uterine douche, has contributed her bit to this slow progress toward better things. Although it seems that the specialist in obstetrics is tending in the direction of conservatism in both postpartum infections at term and those in the earlier months of pregnancy, it cannot be said that this

opinion is by any means unanimous. Thus it is not true in the case of the general practitioner who, imbued with the present-day spirit of activity, feels that he must do something, and that something to him means curettage.

The problem in the treatment of septic abortion is very much like that which existed in the case of appendicitis. At first the mortality in appendicitis was high and the complications many, but with the doctrine of operation as soon as the diagnosis is made the mortality in this disease has greatly diminished. From clinical experience, not laboratory, we have learned therefore that since the cases that will get well without operation cannot safely be selected, the best results in appendicitis are secured by early operation in every case.

Analogously, since we cannot select the cases of septic abortion for a specific therapy, is it better to curette or to treat expectantly? Granting that some will die regardless of treatment, and that some are worse off if curetted and others if let alone, will a greater number receive harm by being curetted or by being let alone? This question can best be answered by clinical experience based on diagnostic facilities and skill.

The author selected a series of 100 septic cases treated actively and a series of 100 septic cases in which there was no local treatment. The cases with no local treatment had fewer days of fever, a shorter stay in the hospital, fewer complications, and a lower mortality.

He decided to run a second series of so-called non-septic cases to compare the results of active and expectant treatment in those who were fever-free, from which he concludes that all septic cases should be treated expectantly until fever-free. Only in the case of alarming hemorrhage, dangerous to life, should the uterus be emptied artificially of secundines. In the septic case no operative procedure should be carried out until the patient has been five days fever-free, at which time such a case may be regarded as a non-septic case. If such patients are septic at least they enjoy an immunity which our clinical experience seems to show permits them to be curetted with impunity and with a possible shortening of the convalescent period. This nominal, highly-important period was determined from the author's clinical experience in the ward by six months' observation. At first curettage was done after three days of normal temperature, but in not a few cases there was an alarming postoperative rise in temperature and the patient's stay in the hospital was prolonged. Experimentation with longer and shorter periods of normal temperature in cases that had been septic showed that the five-day limit was the earliest in which uniformly good results could be obtained. The premise, mentioned above, of treating all septic cases expectantly until fever-free, was of course based upon the conclusions drawn from the 200 septic cases previously analyzed.

Cases were assigned alternately to the operative and expectant treatment lists, when the diagnosis of abortion was made. Cases on the operative list were curetted when there was profuse or persistent bleeding, or when it was evident by examination that placental tissue was retained. If the bloody discharge ceased and it was evident that the uterus was empty and abortion complete, cases on the operative lists were not curetted and notations were accordingly made to that effect. However, the latter cases, though treated expectantly, were not transferred to the list of expectant cases.

Cases on the expectant list were treated as such unless hemorrhage was very profuse or persistent, when they were curetted. Notations were made accordingly and the cases, though curetted, remained on the expectant list.

The induced or criminal group included: instrumental criminal abortions and the self-induced by catheter, silver wire, metal bougie, slippery elm, vaginal douches, quinine, etc.

In the group with associated pathology or a history of accident there was noted: fibroids uteri, retroversioflexion,

hyperemesis gravidarum, syphilis, acute bronchitis, excessive coitus, blows on the abdomen, etc.

The figures indicate that in half the cases the etiology was unknown. The percentage of 32.35 for the group of self-induced and criminal abortions is highly important, for this type of patient is so likely to be infected beyond the secundines and in or beyond the uterus that even the exponents of radical operative treatment could not hope to remove the source of infection by the curette. In addition this class must necessarily be shut out from active interference and is the group which clinical experience has shown die. These are the cases which furnish our mortality statistics almost *in toto*.

The author concludes that in a series of 200 cases of septic abortion, divided equally into those curetted and those let alone, it was strikingly shown that the cases with no local treatment (conservative) had fewer days of fever, shorter stay in hospital, fewer complications, and a lower mortality.

A six months' clinical study showed that no operative procedure should be carried out in septic cases until they are five days fever-free, when they become so-called non-septic cases.

A study of 122 cases of so-called non-septic abortions showed:

That 63.11 per cent of abortions occurred between the second and fourth months, and a history of previous abortions was secured in 35 per cent.

That 32.35 per cent of the abortions were self- or criminally induced and potentially septic.

That 61.46 per cent entered the hospital with a temperature above 98.8° F.

That while 9, or 16.36 per cent, of the 55 cases on the active list did not have to be curetted, 27, or 40.29 per cent, of the 67 on the expectant list had to be operated upon.

That five septic cases which were discharged not curetted returned because of resumption of hemorrhage.

That there was no striking difference between the active and expectant lists in average days of temperature, lochia rubra, and stay in the hospital.

That there were only two complications, and the mortality was *nil*.

Cases of septic abortion should receive no local treatment until they are at least five days fever-free; the one exception being hemorrhage that threatens life.

This nominal period converts a septic case into a so-called non-septic, which has fewer days of fever, a shorter stay in the hospital, fewer complications, and a lower mortality.

So-called non-septic cases should be curetted as a routine.

Forty per cent of expectantly treated cases have to be curetted. Curettage insures an empty uterus and prevents subsequent bleeding. It shortens the stay in the hospital. This procedure is relatively harmless in comparison with the good it accomplishes.

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**Surgery of the Spinal Cord Tumors.**

ADSON (*The Journal-Lancet*, Nov. 15, 1920) notes that spinal cord tumors may develop at any level, but are very prone to occur most in the thoracic region. Seventy-five per cent are extramedullary and are removable; the results depend directly upon the duration of symptoms. If the growth is diagnosed early, its location serves as an important indicative factor of the surgical possibilities and of the prognosis. As a rule, extramedullary tumors are endotheliomas, psammomas, or fibromas; sometimes they are myxomas, lipomas, chondromas, osteomas, gliomas, and sarcomas. Intramedullary tumors are usually of glial origin; they infiltrate the cord, and do not lend themselves to surgery so readily as the extramedullary type. Occasionally the cord can be incised longitudinally, and a partial removal made. In a few instances marked palliative relief has been afforded.

Soft, slow-growing tumors produce very few symptoms at the onset and are difficult to diagnose; while hard, encapsulated

lesions, such as psammomas, cause pronounced symptoms, usually of the Brown-Séquard syndrome. Sooner or later there is complete loss of pain, tactile, and temperature sensibilities, of motor power, and of reflexes in the segments at the tumor level, together with defense and increased reflexes below the segments involved. Fusiform tumors do not present the pronounced level that rounded tumors do; and an impairment of sensory changes over several segments usually occurs before a complete loss is observed. The outstanding feature in the diagnosis of spinal cord tumors is the slowly progressive loss of motor power in conjunction with the loss of pain, tactile, and temperature sensibilities, and exaggerated reflexes below the tumor level, different from those in myelitis, which is associated with a rather rapid development of motor and sensory loss. There is, however, the exception of chronic myelitis, in which the trouble develops similarly to that of cord tumor and produces motor and sensory changes. Horsley and Elsberg have referred to this condition as meningomyelitis. In some cases surgical treatment appears to be beneficial, but there is a question in his mind whether much actual improvement is ever obtained. Unfortunately, it is impossible definitely to differentiate these conditions in advance of exploration, and, if only patients presenting all of the symptoms of spinal-cord tumor were accepted for operation, a certain group of growths simulating chronic meningomyelitis would necessarily be barred.

In the Mayo clinic 62 patients have been operated on—23 up to 1916, and 39 during the past three and one-half years.

In the group of 23 patients complete removal of the tumor was effected in 5, partial removal in 4, and in 9 a tumor was not found.

In the group of 39 patients complete removal was effected in 20, partial removal was effected in 8; the tumor was not removable in 6, and in 5 a tumor was not found. The condition in these five was a marked meningomyelitis with thickened meninges and gray plaques over the arachnoid, showing upon microscopic examination fatty degeneration with fibrous change. The postoperative course of this group of 39 patients has been investigated carefully. Eleven are completely cured and are able to carry on their regular work; 11 are improved; 9 are unimproved; 4 have been operated on too recently to give data of value; and 4 have died.

The mortality in the group of 23 patients is rather high, but it must be remembered that the operations were performed before the development of present-day technique.

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### Wassermann-fast Syphilis.

STOKES and BUSMAN *(American Journal of the Medical Sciences,* November, 1920) reporting on this topic conclude their paper with the following statements:

Search every accessible organ and tissue in the Wassermann-fast case by every clinically available method for evidence of syphilitic changes.

Weigh the degree of activity of the process and the extent of damage and probable recuperative power of the most vital structure involved by the infection.

Identify the weakest element in the patient's make-up and estimate the tolerance for arsenic and mercury of the structures which must bear the brunt of treatment by-effects, such as the liver, kidney, and skin.

Do all that can be done to increase tolerance of treatment by protective measures, by extirpation of focal infection, and by selection of the therapeutic agents.

Direct the treatment of Wassermann-resistant patients less toward overcoming the resistance offered by the Wassermann reaction and more toward a satisfactory symptomatic response of the vital structures involved by the disease within the limitations imposed by the weakest element in the tolerance. Get all the symptomatic effect possible short of recognizable damage. If tolerance permits, give at least as much treatment as to a fully developed secondary case.

Recall the fallibility of human judgment,

which in syphilo-therapy at least has had neither the time nor the means to achieve conclusive results, and always regard the Wassermann-fast patient as potentially syphilitic, and for that reason not to be dismissed from careful search for evidence of activity at intervals throughout life.

Of 458 syphilitic patients who had received from twelve to twenty-nine arsphenamine injections combined with mercurial inunctions, the average being fourteen injections and ninety inunctions in eleven months, 6.6 per cent of primary and secondary cases and 22 per cent of latent, late and hereditary cases (average duration thirteen years) remained persistently Wassermann-positive.

Cardiovascular changes are apparently those most likely to underlie a resistant positive Wassermann test in late syphilis (44 per cent) with neurosyphilis 30 per cent, osseous lesions 30 per cent, hepatic, splenic, and gastric syphilis 21 per cent, and other types from 10 to 17 per cent.

More than one type of involvement was the rule in the individual cases of this group. There were only ten patients presenting no other evidence of syphilis than their positive Wassermanns.

Patients with syphilis should therefore be studied from other angles than that of the presenting type of involvement, in the effort properly to appraise their condition and susceptibility to treatment.

Sixty-five per cent of the patients with cardiovascular syphilis had aortitis and 60 per cent myocardial changes.

Of the neurosyphilitics, 40 per cent had paresis and 50 per cent clinical tabes dorsalis.

Fifty per cent of patients with neurosyphilis had cardiovascular syphilis also.

Gastric and hepatic syphilis were recognized in 52 and 47 per cent of the visceral cases as against only 14 per cent presenting recognizable splenic involvement. Patients with cutaneous syphilis showed the familiar immunity from neurosyphilis and the reverse.

While pyogenic foci were present in 74 per cent of the patients with resistant Wassermann reactions no frank etiologic connection was apparent. The same was true of alcohol, which was used by only 12 per cent of these patients.

There was no evidence that Wassermann-fastness is the result of infection with any special strain of organism. In fact, the "polystructural" involvement in such cases suggests the contrary.

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### Nasal Deformities Due to the Submucous Operation.

CARTER (*Medical Record*, Nov. 13, 1920) states that in view of the great popularity of the submucous operation for the relief of nasal obstruction due to deflected septa, and on account of the increasing number of depressed nasal bridges due to this procedure that are coming under the author's observation for operative correction, he feels that a communication upon this subject will not only be timely, but that it may be of distinct value both to the general practitioner and to the rhinologist as a reminder that disagreeable results may and do follow this operation when it is performed without taking into consideration the age of the patient and without due regard for the anatomical and architectural structure of the nose. No less than 26 cases of depressed nasal deformity, due to the submucous operation, have come for correction.

In none of the cases was the deformity due to infection introduced at the time of the operation; it was due either to the operation having been performed at too early an age, or to the destruction of the integrity of the nasal arch by interference with its architectural structure.

The nasal arch is subject to the same mechanical laws that govern any other arch. It is a curved structure composed of an indefinite number of segments so placed that it may be supported at its two extremities. The growth of the nasal septum is a prominent factor in the development of the arch, and its presence strengthens it, but as a vertical support it takes only a minor part in the preservation of its integrity. The up-

per edge of the septum, however, wedged in as it is between the upper lateral cartilages, constitutes the keystone of the arch, and if by operation, accident, or any other influence this keystone is displaced or destroyed, the dorsum of the nose falls in and the nasal arch is established on a lower level. The problem at first is purely a mechanical one; the deformity, however, is later increased by the formation and contraction of scar-tissue and by the elasticity of the skin of the face. Once the keystone has been destroyed, the deformity resulting can be corrected only by the transplantation of bone or cartilage.

One of the most important considerations in connection with the submucous operation, if not the most important, is the age of the patient; and yet this is frequently ignored by the surgeon in his enthusiasm to relieve a distressing nasal obstruction in a child.

What shall we do for the child suffering with pronounced nasal obstruction due to a badly deflected septum? The assumption is warranted that the septum cannot be straightened and the obstruction to nasal respiration relieved without an operation of some kind. In a child extensive destruction of the septum, such as occurs in the usual submucous operation, is certain to result eventually in a deformity of the nose. The character of this deformity varies only slightly in different cases: the base of the nasal triangle is very broad, the bridge of the nose is flattened, and the concavity from above downward is uniform, the greatest depression being at a point corresponding to the ends of the nasal bones. In most of these cases the whole face eventually becomes broad and flat. The conscientious surgeon, though he has clearly in mind the dire results which may follow any operative procedure extensive enough to destroy this function of the septum, is equally impressed by the urgent necessity of relieving a bad obstruction to nasal respiration which, if long continued during the years of active development of the child, is likely to be followed by conditions not only objectionable from a cosmetic point of view, but what is of far greater importance, injury to the general health, due to deformity of the jaw resulting in malocclusion of the teeth, maldevelopment of the chest, mental dulness, etc. These important considerations leave no doubt as to the course to be pursued—the obstruction must be relieved with as little disturbance of the septum as possible.

The course to be adopted in the treatment of the depressed deformities resulting from the submucous operation is a transplant from the ninth rib, composed of two-thirds bone and one-third cartilage; this is taken at the junction of the rib with the costal cartilage. The transplant is introduced from within the nose and no scar results. The full strength of the nasal bridge is restored and the repair is permanent, for some of his cases have been under observation long enough to demonstrate this fully. The bone transplant establishes a firm bony union with the frontal bone and supports the nasal bridge in its normal position; the cartilage preserves the normal flexibility of the nasal tip.

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### Retroversion of the Uterus.

LYNCH *(California State Journal of Medicine,* December, 1920) voices the feeling of the day to the effect that a uterus may be in any position, provided it is movable, and that symptoms will not occur unless the organ is diseased, or is associated with tubal or ovarian pathology. It is, however, true that retroposed uteri are so often the seat of metritic or vascular changes, and are so frequently accompanied by ovarian disturbances, that the patient usually presents the complex symptomatology at one time ascribed to uterine position. Such cases usually follow birth trauma. Occasionally women who have never been pregnant develop slowly a train of similar symptoms. The uterus gradually enlarges during a period of some years and the ovaries become swollen, cystic, and tender. The symptoms disappear almost invariably after the uterus is suspended by a well-chosen operation. Lynch expresses the belief that a woman's care during the year following delivery may be even more important than

that during her pregnancy. He has undertaken a study of posterior displacements following childbirth, hoping to obtain a number of basic facts. He based this study on 1225 women delivered in his clinic. These people were followed for months and years. As a result he presents the following conclusions:

Forty-two per cent of retroversions were noted in 761 cases observed from 12 to 4 months following their delivery.

Seventy-six per cent of the 322 displacements presented slight or no symptoms. Twenty-four per cent came back because of symptoms. Eight per cent of 439 controls with upright uteri complained of slight symptoms.

Twenty-two per cent of 100 private cases presented displacements. Hard work may be an important etiologic factor for the displacements.

Replacement and pessaries caused anatomic correction in 80 per cent of the cases which wore pessaries. Pessaries were not applicable in 15 per cent of cases selected for such treatment. Replacement and pessary treatment resulted in symptomatic cure and anatomic correction in 73.5 per cent of cases presenting symptoms.

Subsequent pregnancies were noted during the period of study, or following in 15 per cent of 439 cases which did not have displacements; in 10 per cent of women who had treated or untreated retrodisplacements; and in 5 per cent of 109 cases whose retroversion had not been corrected.

No one type of operation has been entirely successful in the author's hands. There were two recurrences in 89 operations which made a new round ligament fixation upon the uterine fundus (45 Webster's, 28 Coffey's, 16 atypical). There were four recurrences following 27 Kelly-Neel suspensions, together with shortening the uterosacral ligaments. Since operations have not proven 100 per cent perfect, the need of early pessary treatment is readily apparent.

# Reviews

LE DIABÈTE SUCRÉ, ÉTUDES CLINIQUES, PHYSIOLOGIQUES ET THÉRAPEUTIQUES. Dr. Marcel Labbé, Professor de Pathologie générale a la Faculté de Paris Médecin de la Charité; Masson et Cie., Éditeurs, Libraires de L'Académie de Médecine, 120, Boulevard Saint-Germain, Paris (VI[e]), 1920.

Labbé, a well-known student of diabetes, in the present volume sums up the attitude of the French school toward the diabetic problem. For him diabetes is not a morbid entity, but a syndrome dependent upon disturbances of the sugar-regulating apparatus. Among the possible causes of diabetes he rejects—an unusual thing in a Frenchman—arthritism as a possible factor in the disease. The essence of diabetes is the total or partial absence of combustion of the carbohydrates introduced in the food or formed within the body. He distinguishes two main types of the disease: (*a*) diabetes without emaciation, which is the more frequent; (*b*) diabetes with emaciation, corresponding to the former French classification diabète gras and diabète maigre. The retention of sugar in diabetes leads to hyperglycemia and to hyperglycistia—that is, an accumulation of sugar in the blood and in the tissues. Contrary to the opinion of most American physiologists, Labbé believes in the derivation of sugar from ingested fats. A number of chapters are merely reprints of earlier articles and deal with special points of the disease; for example, painful syndromes in diabetes, as (1) neuralgia and neuritis; (2) painful arterial lesions; (3) myalgia; (4) arthralgia. Other topics discussed are diabetes

and typhoid fever, diabetes and edema, diabetes and intertrigo and vulvar erythema.

An interesting chapter is devoted to the relation of infectious diseases to diabetes, the author citing cases that seem to indicate that diabetes may be a direct sequel of certain acute infections. In the chapters on pancreatic diabetes no mention was found of the fundamental work of F. M. Allen, while in the section on treatment Allen's method of fasting, which the author states was announced about the same time as Guelpa's treatment by fasting and purgation, is dismissed in a few lines. The chapters dealing with acidosis and diabetic coma are generally very good. In the diagnosis of obscure cases of coma, lumbar puncture and the application of Gerhardt's purgation, is dismissed in a few lines. The fluid should be mixed with 1/10th volume of solution of chloride of iron. In the treatment of acidosis and diabetic coma little is said about the exclusion of fats which has come to be a standard method of treatment in this country. The food which according to Labbé should be absolutely proscribed in the treatment of acidosis is meat.

The book will prove useful and suggestive to all those who are concerned with the practical treatment of diabetic patients or who are interested in the many scientific problems presented by the disease.

D. R.

MEDICAL CLINICS OF NORTH AMERICA. January, 1921. W. B. Saunders Company, Philadelphia, 1921.

This issue of the Medical Clinics of North America is called the Philadelphia Number, because all of the articles are by clinicians who are connected with Philadelphia teaching institutions or hospitals. Altogether there are twenty contributions. The first is by Dr. Alfred Stengel on the Use of Serum and Blood of Convalescent Patients in the Treatment of Lobar Pneumonia and Influenzal Pneumonia. The second clinic is by Dr. Thomas McCrae on Pain in the Lower Back. Other noteworthy contributions are by Dr. Riesman on Phlebitis and Thrombosis; by Dr. Funk upon the Importance of Studying the Altered Position of the Diaphragm; and there are additional papers by Dr. Landis upon Aneurism of the Thoracic Aorta; by Dr. Griffith upon Types of Anemia as Seen in Early Life; and by Doane upon Some Manifestations of Alcoholism. A very interesting paper is that upon Calorimetry in its Application to Clinical Medicine by Fussell and Jonas, and another by Dercum upon Problems in Disorders of the Internal Secretions.

THE ANATOMY OF THE NERVOUS SYSTEM FROM THE STANDPOINT OF DEVELOPMENT AND FUNCTION. By Stephen W. Ranson, M.D., Ph.D. Illustrated in black and in colors. W. B. Saunders Company, Philadelphia, 1920. Price, $6.50.

The publishers have seen fit to bring out their text on very handsome paper with wide spacing between the lines. This fact makes the book even at first glance most attractive. As intimated in the title, the object of the author has been to place emphasis on the developmental and functional significance of structure; or, in other words, the student is led at the very beginning of his neurological studies to think of the nervous system in its relation to the rest of the living organism, which manifestly must increase his interest in the subject very materially.

It goes without saying that for both physiological and clinical neurology, a knowledge of conduction pathways and functional localization is essential, and this book is designed to give the student just these facts. Furthermore, comparisons are made between the brain of the lower animals and the brain of man. Illustrations have been borrowed from many authors, but the majority of the figures have been made from original drawings.

How much time there is in a crowded medical curriculum for students to devote to a volume of this character must be determined by each professor of anatomy. Many will be content with the knowledge which is to be obtained from standard

books on anatomy, but others will turn to the volume of Dr. Ranson, feeling that he has produced a compilation of facts which they and their students can utilize with advantage.

THE PSYCHOLOGY OF THE SPECIAL SENSES AND THEIR DISORDERS. By Arthur F. Hurst, A.M., M.D., F.R.C.P. Oxford University Press, London and New York, 1920. Price $5.00. Pp. 123.

Many American physicians will remember Dr. Hurst because of the interesting illustrated lectures which he delivered in this country a year or two ago as the result of his experience with nervous disorders which developed among soldiers during the course of the world war. The pictures which he showed us at that time were remarkable, because of the severity of the functional nervous disturbances which were present and because of the rapid cure which proper treatment achieved when psychologically induced. The present book really represents the Croonian Lectures which the author delivered upon this subject, and contains 123 pages with quite an adequate bibliography. The book opens with a discussion of the Nature of Hysteria, and follows with chapters upon Cutaneous Sensibility and Cutaneous Anesthesia, with others upon the Superficial Reflexes in Hysteria; the Sensibility and Reflexes of Mucous Membranes; Cutaneous Hyperesthesia; Hysterical Pain; Disorders of Hearing; and Hysterical Disorders of Sight. It is one which should be in the hands of every physician who is engaged in military practice or during times of nervous stress and strain, and many others will be interested in the neurological propositions concerning functional disturbance which he discusses.

LOGIC OF THE UNCONSCIOUS MIND. By M. K. Bradby. Oxford University Press, London, 1920. Price $6.40; pp. 316.

We are not quite sure how we are to present this book to our readers, or whether its contents will prove of material interest to them. The preface tells us that the book purports to be a sketch, not a finished thesis, and that it presents "the view of the logic in life obtained by one who sees them in strong colors but misses subtleties, and perhaps much else." With this honest confession before us we are not surprised to find that the text expresses ideas which at least are original. The book is divided into three parts. The first deals with the Unconscious Background to Conscious Reasoning; the second with Unconscious Motives the Source of Fallacy; and the third with Logic Applied to Life. One of the chapters in Part I deals with Dreams and Unconscious Symbols, and a chapter in Part III deals with the Logic of God and Devil, while another discusses Popular Misconceptions Concerning Reason. Perhaps these statements will give our readers some conception of the themes with which the author deals.

THE AMERICAN YEAR-BOOK OF ANESTHESIA AND ANALGESIA. Edited by F. H. McMechan, A.M., M.D. Surgery Publishing Company, New York, 1921.

This edition of the American Year-book dealing with anesthesia and analgesia from the surgical standpoint in reality covers the years 1917 and 1918, its earlier appearance having been delayed by the war. It is handsomely printed and is really brought up, in many respects, to a later date than the two years which we have named. The volume contains nearly 500 pages, and articles are contributed by no less than 91 contributors. The volume also contains an index of the current literature on anesthesia for the two years named as well as an index of its own contents. It is impossible to review each individual article, many of which are most excellent and all of them good.

There are discussions on the use of Anesthesia in the Surgery of Epileptics and the Handling of Children with Tuberculosis; upon Alcoholism and Morphinism as Complicating Factors of Anesthesia; upon the Operative Risk in Cardiac Disease, and on The Prophylactic use of Pituitrin in Nose and Throat Operations under General and Local Anesthesia. So, too, there are

papers upon the state of the blood as to carbon dioxide and alkali reserve under ether and nitrous-oxide-oxygen anesthesia.

Other papers which we think will interest our readers are the Relationship Between Blood-pressure, Surgical Procedures, and the Use of Anesthetics. There is also a chapter upon Ethyl-Chloride-Ether consequent upon the Employment of Apothesine and upon the use of Benzyl Alcohol.

A very considerable number of the articles are illustrated in an effective manner. The volume is one which every physician, who uses anesthetics or analgesics, will do well to possess.

THE AMERICAN RED CROSS WORK AMONG THE FRENCH PEOPLE. By Fisher Ames, Jr. The MacMillan Company, New York, 1921.

Giving the title of this book clearly explains its scope. As the author well says, it is impossible to give a full account of the activities of the American Red Cross among the French people during the world war, yet the author has deemed it wise to introduce work which has been done immediately following the Armistice, although he does not take up post-war activities in detail.

Almost every citizen of the United States knows something of the work of the Red Cross in one or all of its fields. The present book is not only an interesting statement of what was accomplished, and an excellent illustration of all that America did in helping the people of a friendly country, but should war arise in the future it will form an admirable text-book to be put in the hands of future generations, not only to show them what was done in the world war, but to inspire them with the same nobility of purpose and show them how their efforts may best be expended. The idea must not be gotten, however, that the text deals with uninteresting statistics. On the contrary it is well written, easily read, and may be picked up at any time for the purpose of utilizing an otherwise idle hour with both gain in morale and excellent entertainment.

THE OXFORD MEDICINE. By Various Authors. Edited by Henry A. Christian, A.M., M.D., and Sir James MacKenzie, A.M., M.D., F.R.C.P., F.R.S. In six volumes, illustrated. Volume III. Oxford University Press, London and New York, 1921.

The present volume of so-called Oxford Medicine deals with diseases of the digestive system, the kidneys, and the ductless glands. In general it may be said that the thirteen contributors have a higher rank on the average than the contributors in the preceding volumes. We note amongst their names those of Sir John Rose Bradford, Joseph H. Pratt, Martin E. Rehfuss, David Riesman, Sir Humphrey Rolleston, Sippy and Stockton as names which are familiar to many American medical men. Doubtless the other authors by virtue of their contributions have attained equal standing.

It will be recalled that Oxford Medicine comes out in a form in which, by reason of a special binding, additional pages can be added to each volume from time to time by the purchaser

It is hardly necessary for us to state that in each instance the writer deals with the theme with which his name is closely associated: thus Bradford deals with war nephritis; Plummer with diseases of the thyroid and parathyroid glands, but his article is to follow, having apparently been delayed. We would naturally expect that Sippy would contribute that upon ulcer of the stomach and duodenum, and equally important that Martin E. Rehfuss should write upon diseases of the stomach, while Rolleston, who has devoted so much time and ability to hepatic disorders, should contribute the two chapters upon diseases of the liver.

We note with pleasure that the articles in this volume will prove of more practical value to the general practitioner and to the specialist than did many of the articles in earlier volumes. Nearly all the authors recognize the fact that the discussion of a subject in general terms, no matter how valuable it may be, does not meet the needs of the man who is hard at work at the bedside.

DIAGNOSTIC AND THERAPEUTIC TECHNIQUE. By Albert S. Morrow, A.B., M.D. Third edition, illustrated. W. B. Saunders Company, Philadelphia, 1921. Price $8.

When the first edition of this book appeared in 1911 we took pleasure in referring to it in complimentary terms, and we are glad to know that in the space of ten years it has been reprinted a number of times and that a third edition has now been brought out. In its third edition it makes a very considerable volume of nearly 900 pages, well spaced and with large type, with hundreds of illustrations which are fashioned to show the physician the procedures which are advised. It deals with a wide field, from the administration of general and local anesthetics to sphygmomanometry, transfusion, the treatment of neuralgia by injections, the disinfection of wounds, the preservation of pathological material, exploratory punctures and aspiration, and with measures which should be utilized in connection with the nose, ear, throat, esophagus, stomach, bowels, and genito-urinary tract in both the male and female. While not especially intended as a text-book for students, it is especially designed as a handbook for the general practitioner.

The last edition is brought thoroughly up to date, and we can promise the author and publisher a greater popularity than either the first or second edition obtained.

JOHNS HOPKINS HOSPITAL REPORTS. Volume XX, Fasciculi I and II. The Johns Hopkins Press, Baltimore, 1920.

Dr. William G. MacCallum contributes, from the Pathological Department of Johns Hopkins University, a very exhaustive report upon the pathology of pneumonia in the United States army camps during the winter of 1917-18. Although these two fasciculi have just appeared we note that they were received for publication on October 15, 1918, which is two and a half years ago. We are told that these studies have grown out of the work of two commissions sent out by the Surgeon-General of the United States army to investigate epidemics of pneumonia among the troops. In both of these commissions Dr. MacCallum played an active part at Fort Sam Houston, Texas, and at Camp Dodge, Iowa. The first fasciculus contains more than 150 pages, with excellent plates numbering 53, and the second fasciculus, continuing these plates, carries the number to 76. The plates are most excellent. Taking them as a whole they are possibly the best illustrations of pathological material in black and white that we have ever seen.

Turning from this aspect of the report to the text itself, we can speak with equally high praise. It is not only exhaustive, but what is equally advantageous to the science of medicine it is conclusive; in other words, it is not a mere array of post-mortem results, but in addition a competent and adequate series of deductions reached by the distinguished pathologist who makes the report.

The second fasciculus bears a somewhat different title from the first. It deals with the pathological anatomy of pneumonia associated with influenza. We do not know of any study or contribution of equal value which has appeared in medical literature in the United States for many years.

JOHNS HOPKINS HOSPITAL REPORTS. Volume XXI, Fasciculus II. The Johns Hopkins Press, Baltimore, 1921.

This fasciculus of the Johns Hopkins Report contains a clinical study of 200 cases of tuberculous salpingitis by J. P. Greenberg, the contribution being from the Gynecological Clinic of the Johns Hopkins Hospital. The author points out that until 1886 tuberculosis of the female reproductive organs had always been considered a rare condition, but that since that time an enormous amount of literature has accumulated from every aspect of the subject. Greenberg also notes that as recently as 1909 the disease was considered uncommon enough by some persons to justify reports of single uncomplicated cases, and he expresses regret that modern text-books pay

so little attention to this important subject. A very copious and exhaustive bibliography of the subject is included.

Amongst the conclusions arrived at by the author are that tuberculous salpingitis occurred in nearly one per cent of all women admitted to the gynecological service of the Johns Hopkins Hospital. It was found one and a half times as frequently among the colored as among the white women, and out of every thirteen abnormal tubes removed at operation, one was tuberculous. The average age was between twenty and forty. The chief complaint was pain. Half of the patients had lost weight. One-fourth had pulmonary tuberculosis, and a correct diagnosis before operation was made in only 13 per cent, and in more than half of these diagnosis was aided by the presence of ascites. In 99 per cent of the cases both tubes were involved. In 68 per cent the peritoneum was also involved. In only two per cent was there a decided involvement of the urinary tract.

Finally it is interesting to note that by means of follow-up letters 90 patients were traced, and out of this number 78 were found to be living from two months to thirty years after the operation, and nearly all of them being in good health.

Optimistic Medicine, or the Early Treatment of Simple Problems. By a Former Insurance Man. The F. A. Davis Company, Philadelphia, 1921. Price $3.

It is not quite clear to us why this book should be published anonymously. The topics dealt with are contained in sixteen chapters, the first of which deals with Optimism as a Remedial Measure, the second with The Coöperation Between Doctor and Patient, and the third is entitled Partial Immunity to Disease; from here on the chapters deal with childhood and its problems, adolescence, the housemother who worries, the tubercular suspect, the overworked businessman, and then there is a chapter upon the early grandmother stage. There are other chapters upon The Celibate of Fifty or Sixty, the Methods of Retaining Efficiency Late in Life and Getting Back to that which is Natural.

The book is one which can be read both by physician and patient in many instances with advantage. As is seen from the titles of the chapters, the author, whoever he may be, is original in his ideas, and an examination of his text shows that he is clear in their description.

Surgical Aspects of Dysentery, Including Liver Abscess. By Zachary Cope, B.A., M.D., M.S. Lond., F.R.C.S. Eng. Oxford Medical Publications, Henry Frowde. Hodder & Stoughton, London, 1920.

Cope, basing his study on the surgical complications incident to some thousands of cases of dysentery, includes in this book some portions of his Hunterian Lecture.

His first chapter is devoted to a discussion of Pathological Lesions and the Connection Between Surgery and Dysentery. Later chapters: Surgical Complications of Dysentery; Perforation—Local Edematous Colitis; Dysenteric Appendicitis, the Colonic Pus Sac; Stricture of Colon—Perinephric Abscess—Periproctitis; Remote Lesions Caused by the Amœba Histolytica—Amœbic Hepatitis; Arthritis and Conjunctivitis.

This book is well illustrated, excellently condensed, sound and conservative, and constitutes, if not a comprehensive treatise upon this subject, an eminently satisfactory one. The treatment differs little from that accepted as standard. For the amebic type hematin is advised; for the Shiga Flexner, antidysenteric serum should be given. Attention is called to the fact that the onset of the disease is insidious and that gross pathological lesions may exist without any symptoms. In ulceration of the cecum constipation may be the complaint. At times diagnosis can only be made by examination of the stools and by the therapeutic test.